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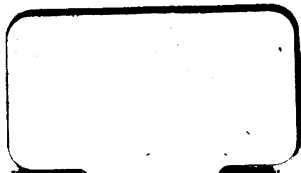
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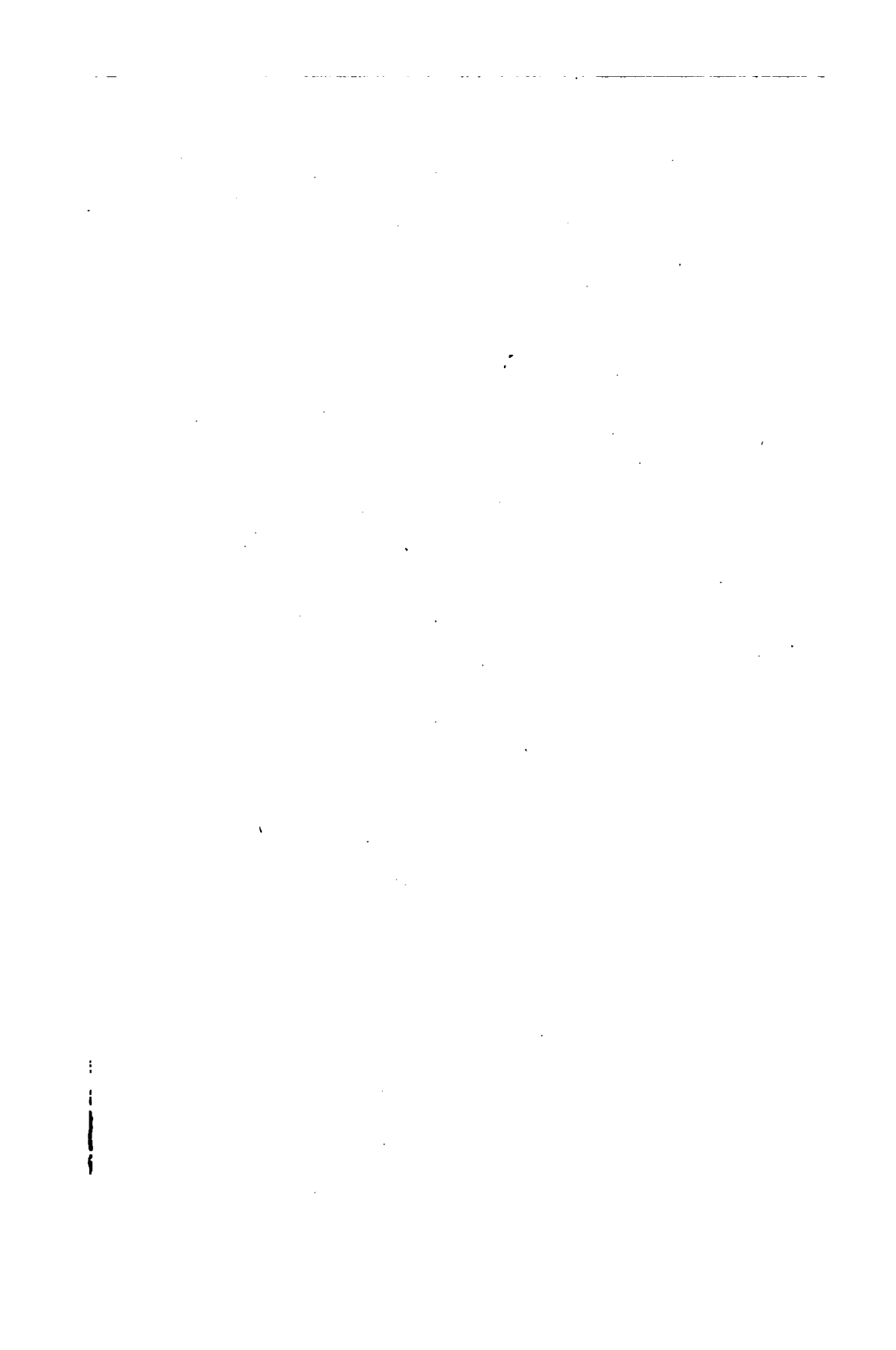
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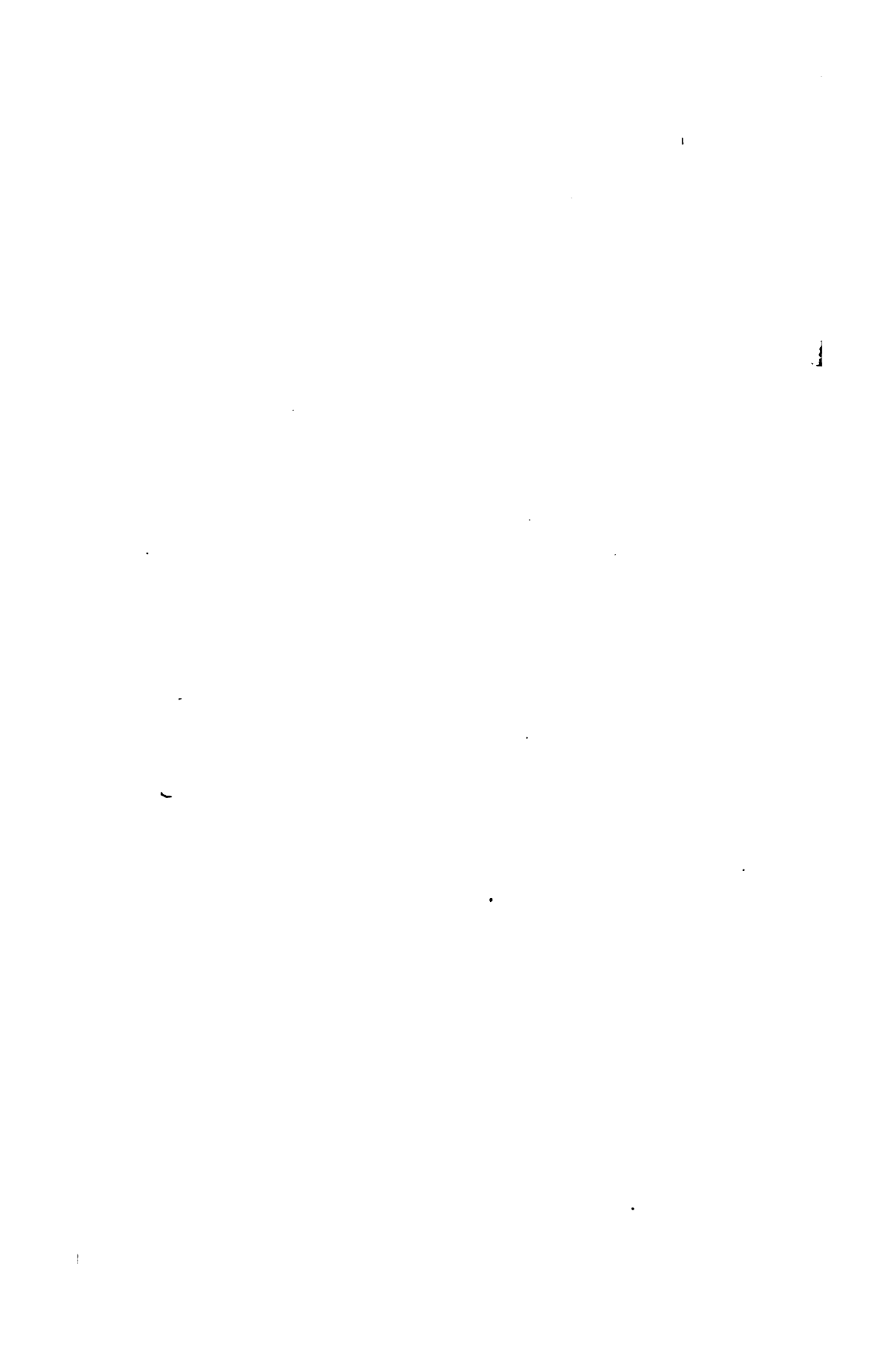


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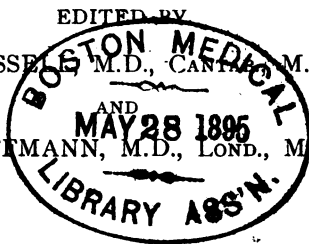




THE
BIRMINGHAM
MEDICAL REVIEW:

A MONTHLY JOURNAL
OF
THE MEDICAL SCIENCES.

EDITED BY
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VOL. XXXVI.
JULY TO DECEMBER.

LONDON:
J. & A. CHURCHILL, 11, NEW BURLINGTON STREET, W.

BIRMINGHAM:
HALL AND ENGLISH, 71, HIGH STREET.
1894.



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BIRMINGHAM MEDICAL REVIEW.

JULY, 1894

ORIGINAL COMMUNICATIONS.

SOME PRACTICAL POINTS IN THE TREATMENT OF TALIPES.*

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THE treatment of the different varieties of Talipes forms so large a proportion of the practice of an Orthopædic Surgeon, and the balance between a useful and comfortable life and one of abject misery is so entirely dependent upon the *personal* skill and patience that he brings to bear on that treatment, that when considering the title for a paper to read to this Society my thoughts naturally turned to these deformities. The subject however is far too wide for a single paper (albeit the text-books usually dismiss it in a couple of pages), I propose therefore to confine my remarks to some practical points which I have found of great importance during twenty years' observation of this class of deformities. The inadequate and misleading manner in which Orthopædy is taught in the ordinary students' text-books and in the wards and lecture theatres of our Medical Schools, together with the lamentable relapses one continually meets with, and the consequent increasing and often unjustifiable resort to tarsectomy, render no apology necessary for attempting to inculcate a more perfect conception of the principles of this most important branch of surgery.

* A Paper read before the Queen's College Medical Society, on December 13th, 1893.

Considerable divergence of opinion appears still to exist as to the derivation of the word "Orthopædy," and to my mind this accounts to no small extent for the ignorance of its principles; many surgeons as well as laymen believing it to be *ορθος*, straight, and *πους*, a foot; this is undoubtedly wrong, not only etymologically but pathologically, as it would limit the scope to foot affections only; others, taking Mayne for their authority, give it as *ορθος*, straight, and *παις*, a child; the chief objection to this is that it has no significance, for our field of action is by no means limited to children. The actual derivation of the word, as coined by Professor Andry, of Paris, who was the first (in 1741) to comprise all deformities under one head, and who adopted this comprehensive term from *ορθος*, straight, and *παιδευω*, I educate or train, is not only correct but absolutely perfect in its corollary, as it strikes the key-note of all successful treatment of deformities, without which the most brilliant operator will usually fail in his efforts to improve them; whereas by taking this key-note as the basis of their practice, men of fair anatomical knowledge, moderate surgical skill, and possessed of the necessary patience, are able to rectify deformities which appear at first sight beyond human help except by osseous mutilation or possibly amputation. I consider that the principles involved in this, the *true* derivation of Orthopædy, are of the highest importance at the present time when we actually hear statements made by leading surgeons to the effect that amputation is in their opinion the only course available in severe cases of congenital club-foot.

I purpose first to make a few general remarks upon tenotomy and the other remedial measures adopted by Orthopædic Surgeons, and then to touch upon points of importance in the treatment of the different forms of talipes. Stromeyer was the first to perform subcutaneous section of tendons in 1831, although Delpech had previously, in 1816, made some approach in that direction, without however thoroughly appreciating Hunter's fundamental axiom differentiating between wounds communicating, and those not communicating, externally.

Dr. Little was the first to perform tenotomy in this country. He himself suffered from a severe equino-varus for which he had worn mechanical supports for years without benefit, and in the face of advice to the contrary from the most eminent English surgeons of the day he placed himself under Stromeyer, with the result that the deformity was completely cured after tenotomy of the tendo Achillis, and from that date the development of Orthopædic Surgery may be traced.

In 1838 the Royal Orthopædic was founded, and at the present time three Orthopædic Hospitals exist in the metropolis as well as departments at several of the general hospitals. I may however mention that the Birmingham Royal Orthopædic and Spinal Hospital is, I believe, the oldest in this country, being founded by my relative, the late Mr. Thomas Freer, in 1817.

A point of much importance is the selection of tenotomes. These are made of all sorts and sizes. Those I use have a nearly square handle into which the blade is firmly set, in this respect resembling eye instruments (fig. 1). The cutting edges

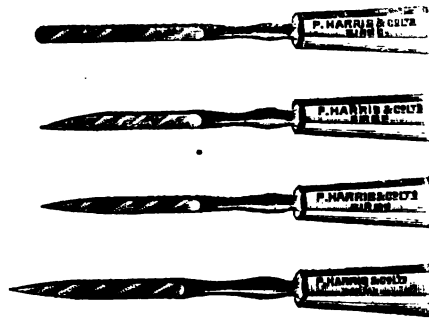


Fig. 1.

are of different lengths, but never more than an inch, the remaining steel part being rounded. The tenotomes usually sold (fig. 2) are invariably much too large and clumsy, and the length of blade makes a wound which takes several days to heal; whereas my punctures always heal in forty-eight hours at the outside—a point of great importance in connection with

after-manipulations. Larger knives are never required except for extensive myotomy.

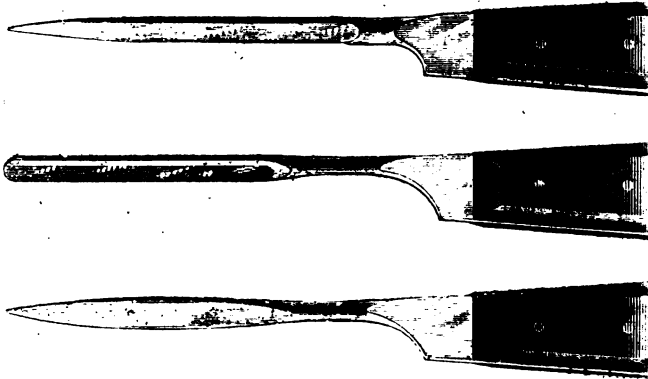


Fig. 2.

Now as to the manner of operating. Some surgeons dispense with an assistant, preferring to take the whole conduct of the operation on themselves; but I cannot too strongly impress upon you the necessity for having an experienced and reliable assistant to make the necessary tension upon the tendon, the division of which is principally effected by the tense tendon itself upon the edge of the knife, the surgeon completing it by a combination of light sawing or scratching movements with the *point* of the tenotome, and very slight leverage. To effect this properly, the ordinary tenotomes are made too convex in front. The moment that the tendon begins to give can be accurately gauged by an experienced assistant, who very gently relaxes the foot, otherwise there is some risk of the tenotome coming through the skin. Many surgeons—notably the Scotch school—enter the tenotome between the skin and the tendon, cutting downwards towards it. This method, although at first sight it might seem to have the advantage of the cut portion gaping instead of closing on the knife, experience has shewn me invariably leaves a larger skin wound, in consequence of having to be done with the belly of the knife. There are also the loss of leverage and of the bow-string action of the tendon itself;

the greater risk of injuring important tissues ; and last, but not least, a kind of subcutaneous cicatrix, owing to the tissues between the skin and the tendon being all divided before the tendon or fascia itself is reached. This is especially the case with the plantar fascia.

Most of the text-books devote unnecessary space to descriptions of the risks of tenotomy and the means of avoiding them. Of course it is necessary to bear in mind the relations of parts and their deviations, according to the nature of the abnormality ; but given a fair knowledge of these relations, and the operation being performed *from the deep surface of the tendon towards the superficies*, the risk of wounding important vessels and nerves need not give much anxiety. The contracted tendons usually stand out so prominently from the subjacent parts that with ordinary care no fear need exist, except perhaps in division of the tibialis posticus. Every surgeon who has had to deal with large numbers of cases of talipes will confess to occasionally severing the posterior tibial artery. But although it is of course essential to avoid doing so if possible, I have never had any difficulty arise from it that a graduated compress and firm bandage for a few hours could not successfully combat.

Again, the non-union of divided tendons receives a great deal of attention in the text-books. These undoubtedly do occasionally occur, and I have had more than once to shorten and suture an elongated tendo Achillis which has been treated by the surgeon with this unfortunate result. But these have been in partially paralytic cases ; and if, in such cases, the after-treatment is delayed for a few days instead of attempting immediate extension, such a procedure would not be necessitated.

After-treatment.—Here the necessity for a true conception of orthopædic principles is paramount, for upon the *unremitting personal attention* to its details success entirely depends, and it is surprising that surgeons with the highest possible experience and a perfect knowledge of the pathology and altered anatomical relations of all the tissues involved should act as though they

imagined tenotomy alone or combined with an occasional wrench is all that is required to overcome a deformity that even if it be not congenital has doubtless existed for years, and if any after-treatment is suggested should leave it to be perfunctorily done by nurses or relatives inexperienced in the necessary manipulations.

In my practice I have made it a point to see the patient daily for the first month at least, and to carry out all the manipulations myself, and afterwards at intervals of not more than a week for six months, unless I find that the friends are able to undertake them intelligently and regularly; and for two or three years I insist upon seeing them three or four times a year to ensure against a relapse.

Kinetics of an active and passive character should be continuously practised in several of the forms of talipes for the whole period of childhood and adolescence, and also massage of those muscles opposed to the contractures. Now to carry out these manipulations and kinetic exercises it stands to sense that the foot should not be confined in any fixed apparatus, as plaster or starch; as I shall mention later, most of the relapses I have to treat are the result of this irrational but too common form of retention. I would state emphatically *that plaster should never be employed in the after-treatment of talipes by tenotomy*. Elaborate instruments with complicated ratchets are not only very expensive and liable to get out of order, but they are also rarely necessary, the instruments I use are the simplest form of Scarpa's shoes, with slight modifications according to the case; and in some instances a modification of an inexpensive instrument for which I am indebted to my friend Mr. Robert Jones, of Liverpool (Thomas's shoe) Fig. 3. As you will see, it is constructed on the principles that his uncle, Mr. H. Owen Thomas, adopted in his well-known hip, knee, and ankle splints. All that is required of an instrument after operation is that it shall *retain* the foot in the improved position effected by the manipulations day by day. Suitable medicines to improve the general health and muscular tone of the patient, and bathing with tepid or cold sea-salt are advantageous.

Sores from pressure are apt to occur occasionally, especially in paralysed limbs. These may be often prevented by bathing the parts with spirit lotion and by judicious padding, and at the first pressure-symptoms appearing, buffers cut out of a sheet of corn-plaster material with holes corresponding to the inflamed points, should be applied; but *on no account* should the manipulations be delayed if avoidable by any means, as after the first three weeks or a month the golden opportunity will be lost.



Fig. 3.

Tarsectomy is the natural evolution of possibly the greatest boon of modern surgery—antiseptics. But, like all other boons, it has its disadvantages; and these are nowhere more prominent than in orthopædy. Previous to the introduction of tarsectomy I have certainly met with a few—a very few—cases for which I should have resorted to it; but since that period I have not met with more than one or two where it may possibly be required eventually. The cases I have seen have not made me specially enthusiastic, and I am absolutely confident that in nine cases out of ten in which it is performed it is unjustifiable. I hold that when it is in our power, by our own personal unremitting care, to preserve to our patient a mobile and useful tarsus with a minimum of risk, we must bear in mind that our efforts are called for, on the ground of expediency, *to correct a deformity, and not to save a life from the effects of injury or disease*, and we therefore have no right to construct, at con-

siderably increased risk, an ankylosis often little better than an artificial foot. In *young children* tarsectomy should be a criminal act; and in case of a fatality, the surgeon should be arraigned for manslaughter.

I will now briefly mention a few points which are usually omitted in the text-books with reference to the different forms of talipes. To begin with talipes varus and equino-varus, many authorities insist that the operations be done soon after birth, because the bones and other tissues are in a more plastic condition. *For this very reason* I distinctly oppose this rule; but I begin *treatment*, as early as the case comes under observation, with a padded metal splint, bandaged to the leg and "set out" below, the foot being gradually everted towards it after the *daily manipulations*. By this plan we can cure a very large proportion of congenital cases without operation at all, and a much larger number with division of the tendo Achillis alone. I never on any account perform tenotomy until the child is beginning to make its first effort at walking—at about 12 months of age. These attempts aid us materially in after-treatment, especially in stretching the tendo Achillis. Again, some surgeons divide the whole of the contracted tendons at the same time. This is often fatal to success in equino-varus, as we thereby lose that most necessary factor, the fixed *point d'appui* of the contracted Achilles tendon upon which to manipulate the foot at its proper place—the transverse tarsal joint. If complicated with contracted plantar fascia, I always remedy that first; then the varus; but never, on any account, touch the equinus until the foot is everted to the fullest extent possible.

It is surprising how frequently I find in relapsed cases that the surgeon has omitted, in the first operation, to divide the tibialis anticus, which is often as effective as the posticus in producing the deformity. A word as to the tibialis posticus: Minute directions are given in the text-books as to the insertion of the tenotome, and it is undoubtedly very easy to miss (fortunately for the orthopædic surgeon treating relapsed cases

this is more likely to have been the case than not), especially in a fat child. I always make my puncture not *immediately* in the middle of the inner aspect of the leg, as directed, but *very slightly* anterior to this, the foot being relaxed by the assistant. By this means my tenotome impinges on the *tibia itself close to* its inner edge. I then gradually slide the point along the bone with *very gentle* pressure until I feel it slip between its inner edge and the tendon, when, the assistant making the tendon tense, the knife can be felt to be "gripped" between it and the bone. Then, before withdrawing the sharp tenotome, I slip a blunt one close to its side, and, turning it against the tendon, divide it in the usual way, and at the same time the flexor communis if necessary. I frequently also perform syndesmotomy of the anterior fasciculus of the deltoid ligament.

I usually find that the heel comes down satisfactorily after division of the tendo Achillis except in relapsed cases, where it is necessary to sever the adhesions as far as possible, after which the manipulations are sufficient to bring the foot to beyond a right angle. To manipulate the right foot in all cases of varus and equino-varus, it should be held firmly by the surgeon with the left hand at the heel, the hand being supported by his knee. The ball of the left thumb should be over the cuboid, while with the right hand the anterior part of the foot is grasped and the eversion so effected at the *transverse tarsal joint*, and *vice versa* for the left, and not only at the ankle, as is usually done. (Two cases were shewn, history and details of operations read, and instruments and boots exhibited. The notes of one of these cases is given at the end of the paper, with photographs).

The points of interest about the first case are that it was one of the worst cases of relapsed congenital equino-varus I have ever seen in a child (as is shewn in the photograph, the boy walked on his cuboid and 5th metatarsal bones), that the peroneus longus had evidently been dug for, but I am pleased to believe not divided; that the tibialis anticus, though very tense and mainly keeping up the deformity, had been left untouched;

that like most relapsed cases that come under my observation it had been put up in plaster ; and that by orthopædic as opposed to purely surgical means the case was entirely cured in just two months from the date of the first operation, about the time that a tarsectomised child would be getting "gingerly" out of bed for the first time with his mutilated foot.

The other case is similar in many respects, except that it has remained longer under treatment, partly owing to the considerable knee and hip inversion, a condition very general in congenital talipes, and a fertile cause of relapse when not sufficiently appreciated and counteracted by instrumental and manipulative measures, and partly from the fact that the child had never walked, which however it can now do fairly well though barely two years of age. This case had also been put up in plaster after the first operation, when about five months old.

In talipes valgus the peronei may or may not require division ; in flat-foot or spurious valgus simple *redressement* under an anæsthetic being often sufficient ; but if at the time of doing this forcible manipulation I find that these tendons are tense and prevent full inversion I divide them at the same time. I then put the foot up in the position of hyper-inversion, on an outside padded malleable metal splint, shaped somewhat like a "boomerang," and with a thick non-resistant pad placed over the luxated scaphoid, this the patient wears for two or three weeks, and in most cases all required afterwards is a boot with a Holland's arch and Thomas' heel ; but the treatment of the greatest value and which is of itself sufficient in mild cases, namely, properly and regularly conducted kinetics, active and combined, must be continued for a considerable time night and morning,

Equino-valgus is sometimes not apparent until the valgus condition is rectified, when the foot will appear to have a canoe-shaped appearance, the inversion at the transverse tarsal joint being complete, but the ankle being held rigidly by the tendo Achillis. Care must be taken to avoid too great stretching after division of this tendon in those cases which are of paralytic

origin, or calcaneus will result; this is especially the case in those peculiar deformities associated with general spastic contraction; here there is an absence of co-ordinating power, one set of muscles is always striving to predominate over its opponents, and great care is required to keep the balance from being upset in one direction or another. For this curious neuropathic condition some authorities discountenance operative interference at all. I have had several such cases, and most satisfactory results have been obtained from judicious tenotomy, suitable retentive instruments, and above all regular harmonious exercises, not only to prevent re-contractions but especially to stimulate and co-ordinate as far as possible the muscular will power, which partly from the central mischief itself and partly owing to the habitual dependence on others for assistance, is always erratic in these unfortunate but interesting cases. (Two cases were described).

To summarise, I would mention once again the chief points to be observed in the treatment of talipes: Use small tenotomes; always have an experienced assistant to bring the contracted tissues into sharp relief; operate from below towards the superficies; commence *treatment* at once, but do not *operate* until the child is old enough to make its first efforts at walking; leave the tendo Achillis until the other deformity is rectified; remember the importance of the transverse tarsal joint; be careful to avoid sores, and remember that the first two or three weeks being past, the golden opportunity for rectification is lost; avoid plaster, but have a simple, easily adjustable, retentive instrument; do not neglect the later manipulations and kinetic exercises, like Cook's tours, *personally conducted*; and last, but not least, leave tarsectomy as a *dernier ressort*.

I am aware that my attempts at condensation have rendered my paper more crude and incomplete than I could have wished. I am also aware that many of the points I have insisted upon are at variance with the views of other surgeons, even, in some instances, of orthopædic surgeons; but I have made no assertion that has not been the outcome of constant observation and

practice, with the results of which I have every reason to be gratified. My present position, after a long and pleasant connection with the Birmingham Royal Orthopædic and Spinal Hospital as student, assistant, and Honorary Surgeon, enables me to speak with more freedom than I could previously have done as to the comparative results of surgical orthopædics and surgical heroics (not to mention the too frequent policy of masterly inactivity) in the treatment of deformities; and I trust that the teachers in our schools and the surgeons of the next decade may be induced to pay more individual attention to the principles of a special branch of practice which I hold stands next to ophthalmic surgery in its importance to suffering humanity.



Fig. 4.

NOTES ON CASE (FIGS. 4 AND 5).

Master W. G. E., Helston, Cornwall, aged 4 ; right congenital talipes equino-varus ; general health good ; no other cases in family. Mother always healthy and had easy confinement, but gives history of "maternal impression," was startled when



Fig. 5.

about three months pregnant by a lad coming to the house with a very severe "club-foot." The boy had three operations performed when about 6 weeks old—"one on the inside of the ankle, one on the outside, and one at the back. The foot was

put up at once in plaster, which was removed at intervals and the foot wrenched; but after some months of treatment there was no improvement." On examination, the foot was found to be drawn up and inverted to such a degree that the boy walked on the outer ankle, and had large "corny" thickening or false heel over the cuboid and head of the fifth metatarsal bone, the inner side of the foot being directly upwards, plantar fascia considerably contracted, scars over peroneus longus on outer side, and also at points corresponding to tibialis posticus and tendo Achillis (fig. 4).

September 19th, 1893. Tibialis anticus and posticus, anterior fasciculus of deltoid ligament, and plantar fascia divided; scarpa applied, manipulations and massage daily.

October 17th. Inversion reduced; tendo Achillis divided, the ends separating to extent of half an inch only owing to adhesions; scarpa reapplied, and daily manipulations continued.

November 19th. Foot perfectly normal; photograph taken (fig. 5). An instrument was applied reaching to knee, with boot attached, having a joint at its waist allowing of eversion of the anterior part upon the heel by means of an elastic artificial muscle attached to hooks on the sole and heel. This I ordered simply as a precaution against relapse, as the boy was going so far away; also to wear scarpas at night for three months; manipulations to be continued.

ON THE ASEPTIC TREATMENT OF WOUNDS.

BY CHARLES A LEEDHAM-GREEN, F.R.C.S. ENG.

It is almost impossible to witness an operation in a continental hospital without being struck with the scrupulous care which is taken to protect wounds from infection by micro organisms. The beautiful glass operating tables, the hermetically sealed instrument cabinet, the elaborate sterilizing plant, almost wholly unknown in this country, cannot fail to arrest attention and

cause one to reflect how much, in these matters, we are behind our continental confrères. And yet the importance of excluding all micro-organisms from a wound is so great that, in comparison with it, all other considerations sink into insignificance.

The best example of this is a case of a severe comminuted fracture, done by direct violence, where we have everything which predisposes to suppuration—the laceration and contusion of the tissues, extravasation of blood, damage to the absorbent vessels; and yet, provided the skin be intact, and thereby all organisms be excluded, the wound will rapidly and certainly heal without suppuration and without fever. In like manner, if the surgeon can exclude all organisms from his wound the healing of it is assured. This being the case, to determine *the most effective means of preventing the infection of wounds* becomes one of the most important problems in surgery; and one that cannot be neglected with impunity.

It need scarcely be stated that the cause of suppuration and fever is the presence of micro-organisms in the wound. With a view to their destruction the antiseptic method was introduced: with a view to their exclusion the aseptic method is employed.

Within the limits of a brief paper it is impossible to touch upon every detail in the aseptic technique; a glance only can be taken of a method which descends to the minutest particulars. If we could be absolutely certain of excluding all forms of micro-organisms from a wound, it would matter little how we conducted an operation. We should be certain that the wound would heal without suppuration, no matter how extensive the laceration of the tissues, how distended the wound with blood or serum; its healing would be as sure and as speedy as that of a simple fracture. But, unfortunately, with all our elaborate modern technique, we cannot always guarantee the entire absence of these organisms. Those who have worked at bacteriology will know how exceedingly difficult it is, in the simplest experiment and under the most favourable circumstances, to exclude them. Happily, however, the human body is not a mere gelatine culture-plate, passively permitting of the

growth of every bacterium that gains access to it; indeed the reverse is the case, for unless the vitality of the cells be depressed, or the microbes be very numerous or very virulent, the tissues of the body will prove more than a match for them. There are therefore two points of the highest importance to be kept in view in the treatment of wounds—(a) *the preservation of the vitality of the tissues of the wound*; (b) *the exclusion from the wound, as far as possible, of all bacterial life*. I shall speak of these in this order, taking occasion in the course of my notes to describe generally the technique of the aseptic method.

1. *Preservation of the vitality of the tissues*.—It is the common practice to wash all wounds with an antiseptic solution, partly with a view to remove all blood clot, and partly with the hope of destroying any organisms that may have found access to the cut surface. But the action of these lotions upon the raw surface of the wound is the reverse of beneficial, inasmuch as *they cause an actual necrosis of the superficial cells*. This is true not only of the stronger, but also of the dilute antiseptic lotions. Indeed the application of simple distilled water is decidedly injurious, causing the cells to become cloudy, to swell, and die. Compare the aspect of an irrigated flap with one simply dried with a soft mop. The irrigated surface has lost its blood red colour and its sticky adhesive character. It appears greyish in colour, is dry and harsh, and the cut surfaces, when brought together, no longer cohere one to another, for the plastic fibrinous lymph has been washed away. Besides which, micro-organisms, when embedded in albumen, are exceedingly resistant to the action of chemical antiseptics, retaining their vitality after several days' continuous exposure to the action even of five per cent. carbolic acid.

If the wound is allowed to become inoculated with germs, all subsequent irrigation with antiseptics appears to be powerless to retard their development, even if it does not directly favour their growth by lowering the vitality of the tissues.

At the last German Surgical Congress, in Berlin, Dr. Schimmelbusch gave an account of some interesting experi-

ments made by him to test the value of the antiseptic treatment of recently infected wounds. He inoculated the tip of the tails of several mice with one of the pathogenic wound microbes, anthrax staphylo and streptococcus, etc., and *immediately* after doing so, treated the inoculated wound with an antiseptic. He found that the result was always the same—viz., the death of the mouse from septic poisoning, no matter what antiseptic he employed or how strong the preparation he used. Not only did all the chemical antiseptics employed prove powerless to avert death, but even cauterising the wound immediately after inoculation failed to do so. Indeed the only remedy which proved of the slightest value was the immediate amputation of the tail as far as possible from the infected place.

Now in these experiments all the conditions were most favourable for the action of the antiseptic—the wound was a mere abrasion, its whole surface was exposed to the action of the antiseptic, which was applied continuously and immediately after the inoculation — but notwithstanding these unusually favourable conditions, none of the chemical antiseptics proved to be of the slightest use.

Should it at any time be thought desirable to irrigate a fresh wound, in order to remove blood or bone dust, warm sterilised saline solution should be chosen on account of its bland unirritating properties.

When wounds are treated antiseptically the provision for free drainage is a cardinal feature in the method. The wounded tissues irritated by the action of the chemical secrete a large amount of thin serous fluid, the amount secreted being in direct proportion to the strength of the antiseptic. Unless this fluid is allowed a free escape it distends the wound causing it to inflame and suppurate. If, however, the wound be closed without irrigation no such secretion takes place and, in the majority of cases, no provision for drainage is required. If the drainage tube be dispensed with the following points must be specially noted.

1. *The most rigid aseptic precautions.*

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2. *The exact arrest of all hæmorrhage.* All bleeding points must be secured, even the smallest, for unless this be done the wound may be distended with blood, a condition which favours (though by no means assures) its suppuration.

3. *The avoidance of all irrigation.*

4. *Gentle but firm pressure by means of careful dressings, so as to bring the cut surfaces into contact with one another*, thereby arresting all oozing of blood, and effectually preventing the accumulation of blood or serum within the wound.

By attention to these points, in by far the majority of cases, the drainage tube can be safely dispensed with. This is an advantage which every surgeon will appreciate, for, not only is the presence of the tube a mechanical irritant to the wound, but its removal necessitates an early and troublesome disturbance of the dressings. It is safer to drain when operating on parts which are already inflamed, or whose vitality is in any way seriously depressed; or when for any reason it is impossible either completely to arrest all hæmorrhage or to bring the raw surfaces into contact with one another; and, of course, when for any reason the thorough asepticism of the wound is doubtful.

I have no doubt that, as our knowledge of the healing of wounds increases, we shall be able to give up the use of drainage after operations on all healthy tissues.

After operations upon the extremities the limb should be elevated. It may seem strange to mention a fact which has been so long recognised, and I do so only because of the rarity with which I find it practised. And yet, perhaps, in no other way can we so directly aid the healing of the wound as by the elevation of the part.

It has been suggested that in cases of severe inflammation occurring in a limb, the main arteries should be ligatured with the view of diminishing the blood pressure at the inflamed part. We are however able by elevation to attain the same object without running the risks attendant upon the deligation of a large vessel. By elevation we also at the same time relieve the capillary congestion and accelerate the venous and lymphatic

flow—we drain, so to speak, naturally. Elevation is also valuable in checking the parenchymatous hæmorrhage following an operation such as an excision of the joint, the subsequent oozing of blood is prevented, and the objection to the use of Esmarch's bandage is removed.*

2. I now come to speak of THE TECHNIQUE OF THE ASEPTIC METHOD.

The prevention of infection.—Wounds are infected only from without, for the tissues of the healthy body are free from micro-organisms.

Sources of infection.—There are two principal sources of infection—viz., (1) the surrounding atmosphere and (2) contact with infected objects.

The air was considered a few years ago to be a most fruitful source of infection, for it had been shewn by Pasteur, Tyndall, Lister, and others that numerous and varied micro-organisms were suspended in it. But more recent researches have proved that the danger of infection from this source has been greatly exaggerated. The microbes suspended in it are, comparatively speaking, few and for the most part innocuous, the atmosphere not providing the requisite moisture and nutriment for their further growth and development. They are indeed but suspended like the dust particles, and as soon as the air is still, they fall to the ground. Wounds are however in great danger from infection by *contact*, and it is against this that our efforts must be principally directed.

The sources of contact-infection are chiefly (a) the skin of the patient, (b) the hands of the operator, (c) the instruments, (d) the dressings, mops, ligatures, etc. To effect the sterilization of these is therefore of prime necessity.

* The mode of procedure is as follows:—After the operation is completed all the visible vessels are secured and ligatured, then the elastic tourniquet is loosened so that any vessel which had escaped detection may be secured. The elastic tourniquet is then removed, the wound mopped dry, thickly dressed with absorbent wool, and firmly bandaged. Before the tourniquet is taken off, the limb is well elevated and kept so for at least 48 hours.

The skin.—The sterilization of the skin is the most difficult, although it exceeds all others in importance. All forms of bacteria seem to find a congenial nidus in the human skin. The warmth, moisture, and decaying animal matter apparently provide them with everything requisite for their growth and propagation. Not only are the non-pathogenic forms found in abundance, but also the infective varieties. The difficulty of sterilizing the skin arises from many causes. Antiseptic solutions alone are powerless to affect the micro-organisms lodged in the dirt and grease in the furrows of the skin and the ducts of the glands. Our chief reliance must be placed upon the mechanical cleansing of the skin, which must be done thoroughly and methodically. The mere washing of a part is quite insufficient. It should be scrubbed with hot soap and water, to which a little soda may be added with advantage. Then the skin must be shaved. This removes not only the fine hairs from the surface, but also the superficial cells of the epidermis in which the germs lurk. The skin is then to be dried, and rubbed with a sterile mop dipped in ether, followed by 1 in 2000 sublimate solution, and finally washed again with hot water. All this should be done twice—viz., once on the day before, and again on the morning of the operation.

Difficult and important as the sterilization of the patient's skin is, that of the surgeon's hands is still more so. Not only does the surface of the skin, but especially the finger nails, afford lurking-places for these minute organic forms. And as the surgeon must of necessity frequently handle septic wounds, the sources of infection are thereby greatly increased. The method advocated by Fürbinger is that which has been most generally adopted—viz. :

1. The hands are washed and scrubbed for one minute with soap and hot water.
2. Then dried on a sterilized towel; the dirt from under the finger-nails is carefully removed with a nail trimmer.
3. The skin is then rubbed for one minute with a sterile mop dipped in eighty per cent. alcohol.
4. Followed by 1 in 2000 sublimate solution,

At present we are hardly in a position to sterilize a mucous membrane such as that of the mouth or rectum. Steffek * has shewn us that the irrigation of the vagina with a litre of 1 in 1000 sublimate solution has not the slightest influence upon the micro-organisms lodged there. The most we can do is to wash the mucous membrane well with soap and water, and remove, as far as possible, all mucus by energetic rubbing with sterilized gauze.

It is essential that whatever we use to sterilize the skin and other parts is itself entirely free from organisms. The water coming from the hot water main may be accepted as sterile, and soap which has been boiled in the process of manufacture may also be taken to be aseptic; but unless attention be given to the nail-brush and towels, they may prove to be a dangerous source of infection. The former is an especial source of peril, and, unless means are taken to sterilize it, simply swarms with bacteria of all kinds. It is therefore fraught with so much danger that it were better omitted than used in an unprepared state. Fortunately, however, its sterilization is a comparatively easy matter. The simplest plan is to keep it continually immersed in a 1 in 2000 perchloride solution. A bowl of this solution, changed once a day, should be on the washstand, and the brushes, when not in use, should lie in it. The solution does not injure the brushes. After the brushes have been used to remove fæcal or other very foul matter, they should be cleansed by boiling soda solution.

Towels which have been cleansed by the use of either boiling water or steam are of course aseptic, but unless care be taken they may before use be readily re-infected, and no confidence can be placed in them until they have been re-sterilized by steam and placed in suitable vessels for their protection.

Instruments.—The sterilization of instruments is an exceedingly simple matter, it being only necessary to place them in a pan of boiling water for ten minutes. This is sufficient to render

* Ueber Disinfection des weiblichen Genitalcanals — Zeitschrift für Geburtshilfe. 1888.

any instrument perfectly aseptic, no matter how foul it may be.

There are one or two points to be noted. The first is that the pan in which the water is boiled must have a well-fitting lid; for water boiled in an open vessel is not of an even temperature, the surface being considerably below the boiling point. If bright metal instruments are boiled in ordinary spring water they readily rust, but this may be avoided by using a 3 per cent. solution of common washing soda. The use of soda, so far from interfering with the sterilization of the instruments, markedly aids it on account of its greater penetrative action and ability to dissolve grease. The sterilizing power of hot soda solution is truly remarkable, a mere dipping of an instrument into the boiling solution being sufficient in the majority of cases to kill all pus-producing germs. Indeed it is by no means necessary that the soda solution should be boiling, for Behring has shewn us that at a temperature of 80° C. it is capable of killing even the resisting anthrax spores in from eight to ten minutes.

Unfortunately there are still to be found in many of our clinics instruments of the old pattern with ivory or wooden handles. Although these are, for obvious reasons, to be as far as possible rejected in favour of the newer aseptic pattern, it may be as well to mention that even these may be sterilized by boiling in the manner described. Excepting that the wooden handles after a time lose their polish and become rough, they bear repeated boiling very well. It must be remembered, however, that prolonged boiling of sharp instruments, such as knives and needles, blunts them. It is well therefore not to boil them longer than one minute at a time.

Our instruments after being boiled may without hesitation be accepted as absolutely sterile, so that nothing is gained by placing them in trays filled with carbolic lotion. It were better to use sterile saline solution than a carbolic antiseptic, the anæsthetising action of carbolic acid affecting the surgeon's fingers most unpleasantly, and any knife laid in it quickly becoming blunt. Saline solution is not only free from these objections, but it is not irritating to the wound surface,

Personally I much prefer to have my instruments *quite dry*; they are more easily handled, and one is saved from the constant dabbling in water with its attendant soddening action upon the skin of the hands.

Dressings.—In England reliance is still placed upon dressings impregnated with chemical antiseptics, as carbolic acid or perchloride of mercury, the idea being that by this means not only are the dressings rendered aseptic, but also that the chemicals by which they are impregnated will exert an antiseptic influence upon the secretion from the wound. Unfortunately both these ideas are proved in practice to be fallacious. We must remember that in order to render a dressing sterile, a prolonged immersion in an antiseptic solution is necessary, a momentary dipping being quite insufficient. Then there is the difficulty of preserving the dressing dry for any length of time without the antiseptic principle losing its virtue. A dry dressing impregnated with carbolic acid rapidly loses its power by reason of the volatilisation of the acid; and even sublimate, after a time, is liable to form an inactive combination. But if it were possible for the manufacturer to provide a dressing capable of retaining its antiseptic properties for some length of time, is it likely that it will be free from the evils of contagion in passing, as it must do, through so many hands before reaching the surgeon's? As a matter of fact, Schlange found that the majority of such so-called antiseptic dressings were rich in micro-organisms, and that, of all he examined, only that supplied to the German army (Löffler's), which is manufactured under control, was absolutely free. (Ueber Sterile Verbandstoff—Verhandlungen der deutsch. Gesellschaft für Chirurgie. 1887.)

If, then, we cannot rely upon the asepticism of prepared dressings, how are we to sterilize them? There can be no doubt that the use of steam is the one effective method. Hot air is unsuitable, as it makes the dressings brittle and harsh; and boiling fails because we require the dressings to be dry. Next to boiling water, steam is the most powerful sterilizer we possess. Within ten minutes it will kill even anthrax spores;

whereas there are few chemical antiseptics, capable of use, which will do the same in twenty-four hours. (Schimmelbusch, *Aseptische Wundbehandlung*.) By the use of steam we can with absolute certainty sterilize wool gauze, bandage, and all other dressings; and, what is of the utmost importance, we can do so just before we wish to use them, and after they have been cut to fit the part required. The form of the sterilizer is not very important, the essential point being that the dressings shall be permeated by a continuous current of heated steam (temperature 100 C.) without the admixture of air.

But sterility is not the only quality necessary in a dressing. We require that it be highly absorbent, so as to take up any secretion from the wound, and yet capable of preventing the secretion from decomposing. The objections and difficulties which the use of antiseptics for this purpose entails have already been touched upon. Experience has however shewn that by far the best preventive of putrefaction is dryness. In the absence of water, decomposition cannot take place. Schlange (Ueber Sterile Verbandstoffe—Verhandlungen der deutschen Gessellschaft für Chirurgie. 1887) made some interesting experiments with regard to this point. He soaked layers of sterile gauze in beef tea and inoculated the surface with the microbe of green pus. The gauze was placed in a glass vessel, but uncovered so as to allow of free evaporation. The result was that the gauze dried and prevented the growth of the organism. A similar experiment was made, but with a covered vessel, where, the evaporation ceasing, the gauze remained moist and the microbes grew luxuriantly. As soon however as the lid was removed and free evaporation permitted, the growth was arrested.

If our dressings are sufficiently absorbent to take up the product of the wound secretion rapidly, and are at the same time of such a nature as to allow of the free evaporation of the fluid constituent of the same, all the requirements for the prevention of decomposition of the discharge *in the dressing* are fulfilled, and any chemical antiseptic in the dressing is superfluous. It is necessary carefully to avoid checking this free

evaporation through the use of any impermeable substance in the dressings. Oil silk, jaconette, and gutta serena tissue stand at once condemned. A dressing composed entirely of simple absorbent gauze is an ideal one. It is easily sterilized, it is very absorbent, it does not "cake" like wool, while its porous character permits of free evaporation, and in softness and pliability it is unsurpassed. Its expensiveness is the only objection to it.

Ligatures.—The ligatures in common use are silk and catgut. Silk is easily sterilized by boiling or by steaming. Boiling is the simpler and quicker method, but has the disadvantage of rendering the silk wet, and consequently more difficult to handle when required for use. Unfortunately we can neither boil nor steam catgut without causing it to swell and become useless. This applies to all forms of catgut, and is a serious disadvantage, for we are therefore compelled to resort to chemical antiseptics, whose efficacy we have learnt to distrust. No reliance can be placed upon the prepared catgut as sold by the manufacturer. It must be sterilized under the immediate supervision of the surgeon. The best method of preparing it is that suggested by Prof. von Bergmann. It is as follows:—The gut, wound on a glass rod, is soaked in ether for twenty-four hours in a glass vessel which has been previously subjected to sterilization by steam for three-quarters of an hour. This will remove all trace of fat. The ether is then poured away and the following mixture is substituted:—Corrosive Sublimate 10, Absolute Alcohol 800, Distilled Water 200. This solution is to be renewed every twenty-four hours for three or four days. It is then replaced by absolute alcohol. If the gut is required to be hard, the alcohol must be almost absolute; if, on the contrary, a soft gut is wanted, a little glycerine (up to 20 per cent.) may be added to the alcohol. The above method is simple and easily followed; and, according to Schimmelbusch, who has made numerous experiments with it, the gut is invariably sterile.

Sutures.—Those of silver wire, silkworm-gut, and horsehair are best sterilized by boiling. The silkworm-gut is thereby much improved, being rendered more pliant.

Mops.—Next to the ligatures, perhaps the “mops” or “swabs” demand the greatest care, for of necessity they come into direct and frequent contact with the raw surface of the wound. Sponges are the best from a mechanical point of view ; but, alas, from an aseptic one, they are the worst. So difficult has it proved to render them sterile that almost all surgeons have given them up entirely, preferring the less absorbent, but readily sterilized gauze or lint. But there are some operations in which the use of the sponge is almost indispensable, and the important question arises, How can they best be sterilized? The usual method by which the sponges are subjected to the continuous action of antiseptic solutions is not one which inspires much confidence, knowing, as we do, that even anthrax spores may be active after fourteen days’ immersion in a five per cent. solution of carbolic acid, and even the ordinary pus micro-organisms, if embedded in fat or albumen, may remain for eight days without losing their power (Schimmelbusch) ; moreover the method is long and tedious.

If sponges would bear either boiling, steaming, or dry heat, there could be no question as to the best method of sterilizing them. Unfortunately none of these methods can be used, the sponge texture being rapidly destroyed by them all. Sponges will however stand water at a temperature of 90° C., and upon this fact Schimmelbusch has devised the following method, which, from its simplicity and efficacy, will commend itself to all. New sponges are first repeatedly rinsed and beaten in cold water to get rid of all sand, shells, etc. Sponges which have been used are cleansed as far as possible by washing first in cold, then in hot water. They are then placed in a canvas bag and pressed till quite dry ; then plunged, in the bag, into a large pot of hot soda solution (one per cent.). In this solution they must remain for half an hour, then they are rinsed in cold water to remove the soda, and, if not immediately required for use, are preserved in sublimate solution. The soda solution must not be actually boiling when the sponges are put in, for they will not stand quite so high a temperature

without injury, but they may be placed in immediately after the pot has been removed from the fire. The temperature of the fluid is then about 90° C., and remains so for some time.

Behring (*Zeitschrift für Hygiene.* 1890. Bd. 9) has shewn that soda solution at this temperature rapidly kills even the spores of the anthrax bacillus; and Schimmelbusch states that sponges previously soaked in septic pus are, after ten minutes' immersion in such a solution, absolutely sterile. After repeated cleansing, the sponges lose something of their elasticity, and must be replaced by new ones. But it is better to avoid the use of sponges as far as possible.

A mop which leaves little to be desired is one formed of simple absorbent gauze crumpled up into a ball. This may be sterilized by steam and used quite dry. When charged with blood, they must be thrown away. The one drawback to their use is their cost. As they can be used only once, the number required during a long operation is considerable, and the cost proportionate. In Germany they are the favourite mop, and deservedly so.

If, to avoid expense, it is necessary that the mops be used more than once, I know of nothing better than pieces of absorbent lint which have been sterilized by boiling. These, when charged with blood, may be rinsed in hot water until free from the blood, then squeezed dry and used again.

The *drainage tubes*, whether of glass or indiarubber, should always be boiled before use.

The dress of the surgeon demands attention. Ordinary clothes are rich in bacteria, and often of a highly infective nature. To guard against this, some form of overalls must be worn when operating. Such material as macintosh, which does not allow of ready sterilization, is unfit for this purpose. A large calico apron, reaching from the neck to the feet and wrapping right round the body, is a simple and efficient means of protecting the patient from infection from the clothes of the operator. This apron can be readily and freshly sterilized, and one should be put on for every operation.

THE ANTISEPTIC TREATMENT OF TUBERCULAR PHTHISIS.

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(*Concluded from page 336.*)

TUBERCULIN I cannot pass by without some notice, however scant this be. There is something intensely dramatic in the suddenness of its fall from popular favour. But this is because it ought never to have achieved the position it did, and only gained it through the *éclat* of its introduction by so illustrious a parent as Koch. It is now fast passing into the limbo of drugs which have been tried and found wanting. Yet the oblivion which is shrouding it cannot be owing to its proved inefficacy, for the results asserted to have been obtained by it are at least as good as those obtained by any other remedy. Its neglect seems rather to be due to two positive forces—first, the dangers of its exhibition in even careful hands and, second, the discovery of various modifications of the original poison. Even so, I do not think we are warranted in dismissing it from practical medicine so long as such reports as those of Von Rück, Schiess Bey and Kartulis, and Thorner are forthcoming. Thorner (*Deut. Med. Wochen.*, September 14th, 1893), after a personal experience of two years, believes in it; even in advanced cases he has obtained improvement in cough, expectoration, diarrhoea, fever, and night sweats. He has seen no ill effects due to its proper administration; but this observation is rather self-condemning, for he further states that anorexia, pallor, or pyrexia occurring later than the fourth week of treatment should lead to immediate disuse of the remedy. His method was to begin with one-twentieth mg. every forty-eight hours for ten doses. Then steadily increase, reaching one mg.

at the end of four weeks. Then increase by one-fifth mg., given twice a week, up to two mgs. Finally, after a rest of three weeks, give one injection of five mgs. You will notice that these are far smaller than the doses in vogue during the Tuberculin-Berlin *furor* of 1890-91.

Schiess Bey and Kartulis (*Zeit. f. Hygiene*, xv., pt. 2) give the results of its action in their hands on forty-eight patients in Egypt, the climate of which they think peculiarly suited to this method of treatment. Compared with other cases living under similar conditions, the advantage lies with tuberculin. Its action is harmless; commencing phthisis it cures; and even advanced cases, if chronic, may slowly recover.

But no one has reported on tuberculin anything like as favourably as Karl von Rück. In the *Therapeutic Gazette* of June 15th, 1891, he related the histories of twenty-five cases so treated. And again in the same periodical, two years later (June 15th, 1893) he continued up to date the histories of these same patients. Thirteen were advanced, with considerable constitutional disturbance, though he considered none hopeless. Of these, three were greatly and three moderately improved, whilst seven had died. In seven others moderate local breaking down had occurred, but the constitutional state was good; six of these he looked on as cured, and the seventh as greatly improved. The remaining five of his twenty-five cases had one or both upper lobes affected, but not beyond the first stage; these were all cured.

He had previously reported, in 1890, on 515 cases treated under similar conditions to the above, with the exception of tuberculin. Eighty-one of these had little constitutional disturbance, twenty of whom recovered and sixteen remained improved. Of the remaining 434, who were more advanced, 39 recovered, and 48 remained improved. Putting these in percentage form, we get—

	With Tuberculin.		Without Tuberculin.	
	Cured.	Improved.	Cured.	Improved.
Disease local only	92	8	24	21
Constitution affected	0	46	9	11

Von Rück, like Thorner, begins with one-twentieth mg., which in his experience has never given a reaction. He then increases by one-tenth mg. each injection till one mg. is reached ; then by one-fifth mg. to two mg. ; by one-half mg. to five mg. ; by two and a half mg. to twenty mg. ; finally, by five mg. to one decigramme if needful. The injection must never be repeated in less than twenty-four hours, and in no case till all reaction has vanished. If the reaction be great, it is best to return to the previous lower dose. When all signs of phthisical activity cease, then omit the injections and, if there be no recurrence of these, be content to simply watch the case. If signs again arise, the treatment must be again gone over from the beginning, starting with the initial dose of one-twentieth mg. After an experience of six to seven thousand injections on one hundred different patients, v. Rück states that he has never noticed any discomfort arise from them.

Ehrlich explained Koch's view of the action of tuberculin at the International Congress of Hygiene held in London, August, 1891. He stated that at every spot where active bacilli existed there was a certain amount of toxin produced by these, which set up a corresponding amount of irritation of the tissues, or, in other words, attracted a certain number of leucocytes ; that the use of tuberculin increased the force of the leucocytic army of attack simply by being so much injected toxin added to the toxin which was already there as the result of the activity of the bacilli themselves. By the united efforts of the two toxins there was a greater chance that the leucocytes would be able to set up a more thorough inflammatory encapsulation of the bacilli than if only stirred to action by the slowly evolved toxin of the germs. This, then, is the problem to be solved : your injection must be sufficient to produce complete encapsulation, but it must not be sufficient to attract suddenly such a multitude of leucocytes as will break down the tissues they traverse, and so give greater freedom, instead of encapsulation, to the germs whom they purpose to destroy. There seems little doubt that with the larger doses originally employed destruction of

tissue was not seldom a consequence.* Thus it is not claimed for tuberculin that it has any direct influence upon the bacilli, but that it adds to their attractiveness in the eyes of the avenging leucocyte.

Ehrlich maintains further that the local hyperæmia produced by tuberculin sets up transudation currents into the practically extra-vascular tissue of the tubercle itself; hence bacillicide remedies, if administered during the period of reaction, had a greater chance of actually reaching the bacilli. Langenbusch used picric acid and mercuric chloride in this manner, and asserted that of ninety-nine unfavourable cases forty were improved and thirty-three cured.

Tuberculocidin is a modification of tuberculin introduced by Klebs in November, 1891. It forms $2\frac{1}{2}$ per cent. of tuberculin. For it he claims these advantages over tuberculin:—

1. It does not produce the profound cardiac depression.
2. The red corpuscles do not become adhesive, nor do the leucocytes get irritated; hence there is no local reaction.
3. When given to guinea-pigs in doses which would be equal to three drachms given to a man weighing 130 lbs., it does not cause more than 5° C. rise in temperature.
4. At the same time it is no indifferent substance, for two grammes may cause weariness and emaciation if daily administered.
5. It produces partial immunity, for after taking it guinea-pigs take twice as long as usual to develop tuberculosis.
6. It attacks the bacilli directly; often, even after a few injections, these become granular and degenerate and, if the injections be omitted, the germs regain their pristine vigour.
7. In animals, after its use, the highly-developed tubercle is absent; with the microscope, minute ones may be detected, but in these are no bacilli; along with this happy result an excessive development of smooth muscle occurs in the bronchi and vessels.

* This destruction must be carefully distinguished from the clearing out of a localised deposit leaving a cavity which speedily contracts, an event which is usually one of very happy augury. But in this latter case encapsulation has taken place prior to the clearing out, which is merely the removal of practically extra-vascular debris.

Tuberculin and Tuberculocidin.—Carl Spengler, of Davos, though unable, experimentally, to prove the direct bacillicide action of tuberculocidin, agrees with Klebs in the main as to the clinical benefit derived from its use; but he finds it lacking in activity. For instance, he never found any decided curative effect upon the ulcers of pharyngeal tuberculosis. A local irritation—*i.e.*, a phagocytic attraction—is needed to remove the tissue *débris* and so allow the tuberculocidin to act. Spengler therefore added tuberculin to the tuberculocidin to effect this purpose. This combination enabled him to give much larger doses of the tuberculocidin ingredient of tuberculin than if he had only given tuberculin alone. He found that he obtained reactions with much smaller doses of tuberculin than if he only used this drug alone—*e.g.*, with an injection of one-thirtieth mg. tuberculin plus one-thirtieth grm. tuberculocidin. Further, that he had no occasion to go beyond one mg. of tuberculin plus one-third grm. of tuberculocidin and so avoided all danger arising from large doses of tuberculin. This treatment of Spengler's is evidently analogous to that of Langenbusch, which I have before spoken of—Spengler using tuberculocidin as a bacillicide in the same way as Langenbusch used picric acid and mercuric chloride.*

Of *Iodoform* I have had considerable experience during the last eight years, and on the whole I consider it the most satisfactory of all the antiseptic drugs which have been used in tuberculosis. But I am now speaking purely as a clinician and with somewhat bated breath, for I am not unmindful that there are many who deny that it has any power in pulmonary tuberculosis and, indeed, some who even say it fights for, instead of against, the bacillus. Thus, Heyn and Rovsing, of Copenhagen

* Hunter's B modification of tuberculin appears to have much the same properties as tuberculocidin, and can be used in the same doses. Trudeau (*Med. News*, Phila., September 3rd and 10th, 1893) filtered the bacilli from a liquid culture of them. Injecting the bacilli he found produced no symptoms but those of depression and general chronic septicæmia; but injection of the liquid filtrate had much the same effect as a similar injection of tuberculin.

(*Fortschritte der Med.*, 1887, ii., p. 39), say that never have they found the mixing a relatively large amount of iodoform with a tubercular inoculation has prevented the development of general tuberculosis in rabbits, and that in two instances they believed it quickened the onset of tuberculosis at the point of inoculation. Again, Filleau and Léon Petit, in their interesting *Bulletins on Tuberculosis* (No. 2, May, 1887), state that it has no influence on the vitality of the tubercle bacillus, not even when the inoculated spot is the eye, where one would have thought the access of light would have aided the setting free of iodine and intensified its action. But more than this, these French *savants* add that the drug appears to have an irritating action on the tissues, which renders them peculiarly prone to the inroad of the bacillus of tubercle! But Gosselin, as we shall see directly, in this same year 1887 came to a very different conclusion—to wit, that though iodoform did not kill the bacillus, yet it prevented the anatomical development of tubercles, it appearing to render the tissues sterile to the foe. And it is with Gosselin that the mass of clinical evidence goes, both surgical and medical; and with him, too, I throw in my lot. The researches of chemists point in the same direction. M. Rummo, in a valuable paper in the *Archives de Physiologie* for 1883, p. 144, found iodine in the urine one hour after the entrance of iodoform into the stomach, but the excretion went on so slowly that traces of iodine could still be detected in the urine three days later. The iodine seems to escape by all the secretions, partly as an iodide, partly as an iodate, and partly as a new organic compound of iodine. Iodine itself is eliminated in the same way. It would seem, then, that the iodoform first splits up into its components, and that in the act of excretion the iodine is again recombined. If, therefore, we recognise iodine to be a powerful antiseptic, it appears difficult to deny the same rôle to iodoform. However this may be, it has certainly kept its hold on the profession since it was first introduced as a remedy by Dr. Glover in 1837—fifteen years after its discovery by Sérullas.

As long ago as 1852 Righini wrote a very complete monograph on the drug, praising its use as an inhalation in early phthisis, and expressing his belief that when taken internally it arrested the disease. At the Amsterdam congress in 1879 Semmola reported his experience: as a portion is excreted unchanged by the lungs he concluded that by giving the drug internally he would obtain both the local and constitutional effect; he accordingly gave it in pills, but did not exceed a daily dose of 8 grains. Yet, and even with smaller doses, he found great lessening of cough, expectoration, fever, and putridity, with a corresponding improvement of the local and general condition. Rummo obtained still better results by employing doses as large as 15 grains dissolved in 360 grains of essence of turpentine as an inhalation: he believed that the turpentine helped the local action of the iodoform.

Dreschfeld and Shingleton Smith are our chief English authorities. The latter, in 1884, presented a report of his experience with it to the Copenhagen Congress. He was "in the habit of increasing the dose from time to time from one grain up to five or even six grains five times daily," but his average maximum, judging from his table of cases, appears to have been three grains thrice daily. In only 6 out of 46 cases did improvement fail to occur; increase in weight and fall in temperature being the two most striking results.

It was the excellent results obtained by its use in the Manchester Children's Hospital, where I was House Surgeon in 1883, that first drew my attention to its value. Strangely enough, though I have never used it since with anything like the freedom I did then, yet I never knew a child to suffer from symptoms of poisoning.

Soon after my appointment as Assistant Physician to the General Hospital, I began to try the effect of iodoform upon the phthisis among my out-patients. Through the courtesy of the hospital authorities I have been able to examine my Case Books for 1886, 1887, and 1888, but, unfortunately, of the many instances where iodoform was used as the main treatment,

I can only collect 46 where the notes were kept with sufficient persistency to make them worthy of record. Of these 12 were much improved, 15 improved, 11 remained the same, and 8 grew worse; that is, 59 per cent. improved and 17 per cent. grew worse. It will be seen that no deaths are recorded; this is owing to the exigencies of a multitudinous out-patient *clientèle*, which made it almost impossible to follow up those patients who became too ill to attend the hospital.

Of the 12 who much improved 6 had reached the third stage, but only two of these had both lungs attacked, and only 1 amongst the earlier cases was so affected. Of the 15 who improved, 11 had reached the third stage and 7 had both lungs involved. Five of those who grew worse had both lungs attacked, and three of these had reached the third stage. Of the 11 who remained stationary 7 had reached the third stage and 5 had both lungs diseased. You will see from these statistics that the advanced cases did as well as the early ones. This I think is due mainly to the favourable nature of the advanced, these being mostly cases of localised cavitation or those in which considerable fibrosis had occurred. The unfavourable advanced cases felt themselves doubtless too ill to stand the exhaustion of out-patient attendance.

My usual prescription was one grain pill to be taken 6 times daily. It never exceeded this amount and was occasionally less, the average being 5 grains daily. In three cases only were any symptoms of poisoning detected, and these were of merely a mild gastric nature. I also tried the drug in conjunction with oil and tonics, and compared both classes of cases with those in which oil and tonics alone were used. The conclusion I arrived at after a three years' trial was a definite though by no means an extremely sanguine one. I believed that iodoform given by itself gave me better results than any other drug or combination of drugs that I had tried or seen tried. It soothed the nervous system of erethic subjects; it very greatly lessened cough and expectoration; it powerfully increased nutrition, the patients often becoming quite plump under its continued use; finally,

there was as great if not greater improvement in the physical signs than I had seen accomplished by any other mode of treatment, except that of climate and hygiene.

I think this improvement in nutrition and appetite is very striking testimony in favour of iodoform having some specific power over tubercular disease. For when given to healthy persons there is no doubt of its generally depressing effect, especially upon the nervous and digestive systems, producing gastric catarrh, inappetence and a condition of mental misery approaching melancholia. Whereas in tubercular subjects it frequently induces a feeling of well-being with a rapid increase of weight, comparatively large doses being taken with impunity. One of my cases has taken as much as 50 grains a day with no ill effect of any kind. Indeed, tubercular patients have seemed to me to feed upon iodoform much as syphilitic ones do upon mercury.

I have since used iodoform for the cure of phthisis in some private patients and in some in-patients at the Queen's Hospital, and my later experience fully bears out my previous impressions. Before analysing the results obtained, it will be as well perhaps to first tell at some length the story of a case which is remarkable in several ways.

C. H., schoolboy, 18, I saw with Mr. Leech who examined him one month previous to my visit on two occasions and found no sign of pulmonary mischief, in fact there had been no definite lung lesion detected till toward the end of April. On May 8th, 1891, when I first saw him, the heart was greatly exposed, pulsation being marked in 2nd, 3rd, and 4th spaces. There were all the signs of widespread and rapid excavation in the upper part of the left lung, and throughout existed the large crepitation of tissue destruction. The right apex also shewed signs of consolidation. Bacilli were numerous and the lad was tall, thin, and debilitated. His expectoration was profuse and muco-purulent, and he had severe constant pyrexia with night sweats.

Under such circumstances I could but share in Mr. Leech's

prognosis of a speedily fatal issue, though I held out some hope on account of the well-known fickleness and uncertainty of the disease, especially as the family history was good. He was given Fellowe's syrup and 2 grains of iodoform thrice daily.

On May 14th, his heart was much stronger, his dyspnoea less, his temperature lower, and his general condition improved. The left lung was drier and the base clearer. There were signs of extension on the right with the formation of a small cavity. He now takes 8 grains of iodoform daily and is gradually to increase the dose by a grain every other day.

On June 6th. He had no expectoration and hardly any cough. His N.S. had gone and his temperature was normal. The lungs had improved and the lad was heavier. His daily dose of iodoform is 20 grains and it is to be increased to 30.

August 18th. Has gained 8 lbs. since last note. Stomach reaches up to 4th space on the left. The heart is exposed up to the 2nd cartilage. The lung is almost dry, and the cavities are much smaller. The right apex shews merely deficient P.N. and slight broncho-vesicular BS. The right lung extends one inch to the left of the sternum. There was evidence, then, here of rapid contracting fibrosis of the left lung with corresponding hypertrophy of the right.

Dec. 3rd. He has been two or three months in the Isle of Man. He has continued well, and his father wishes to know if he may join him in his business. He has persisted in taking daily 30 grains of iodoform. His weight has increased 16 lbs., an increase of 24 lbs. since his illness seven months ago.

June 6th, 1892. Has continued well. No cough nor expectoration this year. Is still taking iodoform, an average daily dose of 27 grains. Still plenty healthy-looking bacilli in a small quantity of sputum he spat up one morning.

Dec. 15th, 1892. Is distinctly worse, though his lungs remain dry and are more fibrosed. Plenty of bacilli in the morning expectoration which is only occasional. He has lost much weight during the six months, and has done so steadily, being now 18 lbs. lighter than he was in May.

February 21st, 1893. Very feeble, with severe hectic fever, an acute attack having supervened, with evidently a fresh outburst of tubercle at the right base.

March 28th. Has continued very ill and wasted. On the 24th he had a large hæmorrhage, but still seems better than in February.

June 22nd. He recovered from the fresh attack, but never regained his strength. He is very fragile, weighing only seven stone—two stone less than he did twelve months ago.

October, 1893. He dies, having persistently taken a daily dose of over twenty grains of iodoform, and for long periods thirty grains, during the whole two and a half years of his illness, with no ill effect, so far as I could determine, of any kind whatever.

I have ventured to detail this case to you at some length because—

1. It is a very good justification of the dictum that we should never give up hope in cases of acute phthisis. This is a dictum of whose truth I feel more and more convinced the wider my experience becomes. For six months of the thirty during which I watched this lad I should have been justified in calling his a case of arrested phthisis.

2. It bears out in part the result of an experiment of Gosselin's in 1887. He gave some rabbits and guinea-pigs a daily injection of three drops of an ethereal ten per cent. solution of iodoform. After some time he inoculated these animals with tubercle, and found that the evolution of the disease was notably delayed. In another series of cases he inoculated the animals first, and then injected the iodoform daily into some of them, keeping the others as control subjects. These latter all died of tubercle between the thirtieth and forty-eighth days after inoculation. The latter he killed on the ninety-fifth day, having given ninety-five injections, and found in them no trace of tubercles, not even in those in which he did not begin the injections for ten or twelve days after the inoculation, unless indeed the lesions were already far advanced

by this time. But—and this is the point to which I wish to draw your attention—he never found that the bacilli were destroyed, for in several cases where he kept the animals alive after he had ceased injecting the iodoform, tuberculosis always sooner or later appeared and went on to its fatal termination. It would appear therefore that he merely made the tissues of these animals sterile so far as the bacillus is concerned. The bacilli were starved but not slain. And we are well aware of the remarkable pertinacity with which the bacillus of tubercle clings to life. Or it may be that iodoform kills the bacilli but is unable to destroy the spores, though these cannot develop in tissues saturated with the drug. So with my patient C. H. During the period of arrest—at least six months—bacilli were always found in any occasional sputum that was expectorated and examined. Yet during this same period rapid strides were made towards health and strength, both locally in the lungs and constitutionally—strides which would have been still much greater had not the heart been sadly upset by the dislocation induced by the rapidly contracting left lung. The bacilli appeared to be quite harmless, and would probably always have remained so had not the destruction of lung tissue been too great to admit of due oxygenation of the blood sufficient for the wants of a growing lad. In all probability they continued to multiply in some region of diseased lung which was nearly cut off from vascular supply, and therefore from the iodoform conveyed in that supply.

3. It emphasises the need to continue the remedy for a long period after *all* symptoms have vanished (*cf., syphilis*).

4. The case is interesting as conclusively shewing that a daily dose of twenty to thirty grains of iodoform can be continuously taken for two and a half years with no detectable ill effect.*

* I must not omit to mention that drachm doses of Fellows' syrup of the hypophosphites were taken thrice daily for several months, and that cod liver oil in varying doses he took during the greater part of his illness. These no doubt helped his nutrition, but I am convinced the iodoform was by far the most powerful remedy, and my patient was more firmly of this opinion than I.

5. It exemplifies the good results which iodoform is usually said to bring about, and which I have previously mentioned.

Ten other cases which I have abstracted from my Case Book I treated for periods averaging five and a half months each with iodoform as the chief remedy. The initial dose was six grains daily, this being quickly raised to an average maximum of fifteen daily. All these had but slight pyrexia, and were in a state of health sufficiently good to enable them to consult me in my rooms. The following are brief notes of their histories.

CASE.	Daily Dose and its duration.	CONDITION AT Commencement.	End.	LATER HISTORY.
1.	6 grs. 2 months	III. Stage. Both lungs.	No change.	The same 6 months after.
2.	6 to 20 grs. 6 months.	I. Stage. Both lungs chronic.	Local signs less, much stronger, gain of 8 lbs.	Considers himself cured.
3.	6 to 52 grs. 18 months.	Tubercular Pleuro- Pneumonia (L. base), acute. Spread to R. lung.	Improved greatly, lost 5 and then gained 3 lbs. Iodo- form "always stops cough."	Still ailing, but local condition almost quiescent.
4.	6 to 16 grs. 2 months.	I. Stage. Both lungs chronic.	Gave up iodo- form because of gastric up- set.	
5.	6 to 12 grs. 2 months.	III. Stage. Both lungs, severe py- rexia, fistula.	Expectoration gone. Ap- pearance im- proved, lungs the same.	Larynx attacked, and dies 12 mos. later.
6.	6 to 12 grs. 2 months.	I. Stage. Both lungs. Has progressed since first seen.	Gained 4½ lbs. Dyspnoea gone, lungs dry.	
7.	6 grs. 3 months.	III. Stage. Both lungs. Began as L. Pleurisy.	Cavities at both apices have dried and contracted. Much gene- ral improve- ment.	Got quite strong. Returned to work for 18 mos. Now, 3 years later, recovering from another at- tack.
8.	6 to 12 grs. 5 months.	Larynx and R. apex.	No improve- ment.	

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CASE.	Daily Dose and its duration.	CONDITION AT		LATER HISTORY.
		Commencement.	End.	
9.	6 to 20 grs. 18 months.	I. Stage. Both lungs. Hæmoptysis $2\frac{1}{2}$ years ago.	Improved con- siderably.	For a year consider- ed himself well, though husky, then came to me again with ad- vanced laryn- geal and nasal tubercle and dies septicæmic.
10.	6 to 12 grs. 3 months.	I. Stage. Both lungs.	Much improved, locally and constitution- ally.	Six months later improvement well maintained.

Of these 10 patients 5 benefited very greatly, 2 improved slightly, and 3 were much the same during the period they were under treatment. It must be remembered that, except in one instance, these patients had no climatic or hygienic advantage, and nine of them continued to earn their livelihood, which, if not of a sedentary nature, has been one obliging them to spend the day indoors in not the best of atmospheres. They differed from hospital patients only in being better housed and better fed.

Of my in-patients at the Queen's Hospital during the past two years, I can only select six as fair samples of treatment with iodoform. All of these took the drug regularly for six weeks except one who, admitted in the last stage, died at the end of three weeks. Three of the other five suffered from nervous symptoms due to action of the drug, necessitating its omission. In one of these, in whom the symptoms arose when he was taking a daily dose of 32 grains, an acute toxic retrobulbar neuritis occurred, producing double complete central scotomata which did not thoroughly clear up for three months.* His other symptoms of poisoning were typical of other cases, viz. : a persistent taste of iodoform in nose and mouth, furred tongue, diarrhoea, giddiness, faintness, depression and irritable drowsiness, constant grumbling, restlessness, hallucinations,

*Reported by Mr. Priestley Smith in the *Ophthalmic Review*, April, 1893.

tingling and numbness of legs with increased knee jerks. I have also notice a temporary aphasia, great excitability necessitating a male watcher, and a curious condition allied to alcoholic delirium, to wit, imagining little pigs and other curious animals and things upon the bed. But all these symptoms are purely temporary and cease soon after the omission of the drug leaving no trace behind them. Nor do they appear to militate against the improvement, local or constitutional, of the patient.

All the five were in advanced stages of the disease and they all improved; two very greatly indeed, for in one a large, probably tubercular, tumour in the abdomen completely vanished, whilst the lungs underwent considerable improvement; and in the other, cerebral symptoms, which I diagnosed as tubercular meningitis, entirely cleared up, the patient gaining 15 lbs. in weight in two months, and losing nearly all signs of pulmonary mischief though he was admitted with a hectic temperature ranging from 95° to 104° .

They all commenced with a daily dose of 6 grains, which was quickly increased to an average maximum of 26 (in 14 days) at which amount the treatment was continued.

Lastly, I should like to say a word or two as to the best method of administration. I believe it to be always safe to begin with 2 grs. t.d.s., provided you warn your patient of the possible ill effects which may ensue. They will very rarely occur and if they do will come on gradually. The persistent odour and slight anorexia or an immature "bilious attack" are the most likely events. If your patient has difficulty in steadily taking this small dose it is useless to persevere any further with the drug. Some advise, in this event, recourse to hypodermic injection, but, apart from its difficulty, I fail to see why such a symptom of constitutional saturation as persistent odour should not arise as quickly with this method as when the drug is given by the mouth. This opens up another point. If alimentary administration can produce such incontrovertible evidence of constitutional saturation as the nervous symptoms (*e. g.*) indicate I fail also to perceive why any better results can be obtained by

hypodermic medication than by pills, though the superiority of the syringe is strongly upheld by some.

Having satisfied yourself by three or four days' treatment that the daily dose of 6 grains can be well borne, order it to be increased by two grains every other day till 30 grains are reached. Keep the patient to this daily dose for at least three months and, at a somewhat lower level (should all signs of activity have vanished) for three months longer. But be very chary of dropping the drug altogether. I never *initiate* its disuse; and if the patient does not strongly object I always advise its continuance for a year. In fact, as I have before stated, I fall back upon the much greater experience we have of syphilis and its remedies and endeavour to guide my steps in accordance with this.

I have usually limited myself to a maximum dose of thirty grains a day, because Sternberg (*Amer. Jour. of Med. Sci.*, April, 1883) shewed that thirty grains of iodine should be sufficient to prevent the development of various test organisms he employed in a man of 160 lbs.; because iodoform contains 97 per cent. of iodine; because it is decomposed in the body; and, lastly, because its excretion is slow; so that a daily dose of thirty grains should ensure the maintenance of thirty grains of iodine in the body. But Sternberg did not experiment with the bacillus of tubercle, which we know possesses a very stubborn vitality, so that the dose may be quite inadequate in its case. Moreover, there is no proof that iodoform's beneficial action is due to its direct destruction of the bacillus any more than there is a proof that iodide of potassium cures syphilis by its direct poisonous action on the syphilitic germ.

REPORTS OF CASES.

TRANSPPOSITION OF THORACIC AND ABDOMINAL VISCERA.

BY J. F. ATKINS.

RESIDENT MEDICAL OFFICER, NEW INFIRMARY, BIRMINGHAM.

The following case is of such rarity as to be worth recording.

A woman aged 53, suffering from alcoholic cirrhosis of the liver with enormous ascites, was admitted into the Birmingham Workhouse Infirmary on December 5th, 1893.

Paracentesis abdominis was performed several times, and on each occasion a very large amount of ascitic fluid was drawn off (from 20 to 27 pints), the fluid very rapidly reaccumulating. Death occurred a few days after the onset of hæmatemesis, four months from the date of her admission.

At the *post mortem* examination the diaphragm was found to be considerably displaced upwards; its highest point on the left side was on a level with the lower border of the second left rib, and on the right side was on a level with the lower border of the third right rib. All the thoracic and abdominal viscera were found to be transposed. The heart occupied the right side of the chest, with its apex pointing to the right, the aorta arching to the right and giving off first the innominate artery, which ascended to the left side. Next in order came the right common carotid and right subclavian arteries. The relative positions of the œsophagus, thoracic aorta, and superior vena cava were all reversed. The right lung had two lobes and the left lung three lobes. The liver was situated in the left hypochondriac region; the larger lobe was to the left of the longitudinal fissure. The spleen was situated in the right hypochondrium. The cardiac end of the stomach was placed to the right, and the pyloric end to the left side of the abdomen; the concavity of the duodenum was directed to the

right, and embraced the head of the pancreas. The caecum with the vermiform appendix was in the left iliac fossa; the sigmoid flexure and the rectum were on the right side. The abdominal aorta and inferior vena cava lay in transposed relations.

The woman was admitted into the infirmary under Dr. Kauffmann, at whose request I am reporting the case.

PERISCOPE.

URINARY AND RENAL DISEASES.

BY ROBERT SAUNDBY, M.D. EDIN., F.R.C.P. LOND.
PROFESSOR OF MEDICINE, MASON COLLEGE.

DIABETES.

Sur la pathogenic du diabète. Nouvelles recherches et revue critique des hypothèses émises à ce propos. N. de Dominicis (*Arch. de méd. exp.*, tome v., 1893, p. 469).—Dominicis has experimented largely on the production of diabetes by the removal of the pancreas, and he asserts that although in most cases this operation has been followed by glycosuria with cachexia, polyphagia, polydipsia, azoturia, and phosphaturia, in a considerable number of cases glycosuria did not occur, and yet all the other symptoms were present. He protests against Hédon's assertion that failure to produce glycosuria by this operation is due to incomplete extirpation of the gland. He refers to a case of Hédon's in which glycosuria followed immediately on extirpation of the pancreas, but disappeared after three days, and during the twenty days following not a trace of sugar could be found in the urine; and he wants to know how this case is to be explained? He claims to be able to extirpate the pancreas at one sitting with ease and without hæmorrhage or injury to the duodenum, and he directs attention

to the comparatively bungling methods of Hédou and others; their previous injection of the duct with paraffin; operation performed at several times, etc.; and to their confession of inability to perform the operation as he does without killing the animal. He has performed the operation successfully—*i.e.*, with survival of the animal—in dogs 120 times, without counting other animals. He has kept them in his own house to ensure their supervision and good condition. As a result, he has found that—

1. Animals deprived of their pancreas undergo a rapidly fatal cachexia (one, two, or three months, rarely longer). They present constantly polyphagia, polydipsia, polyuria, azoturia, phosphaturia, acetonuria, and paralysis of the hind legs, etc. Glycosuria, which is ordinarily abundant, may yet be absent in a considerable number of cases.

2. The macro- and microscopic anatomical lesions were constant and identical in all cases, whether glycosuria was present or not; and among these the most important lesions were atrophic degeneration of the liver and of the spinal cord.

3. Saccharine and iodoform can increase three- or four-fold the quantity of urine, but do not diminish the amount of sugar, unless the diet is modified. Salts of copper and carbonate of soda injected into the veins or under the skin act in the opposite way.

4. Transfusion of blood from the portal vein of a healthy dog during full digestion into the jugular vein of a diabetic dog doubled the quantity of sugar in the urine for the eight hours following the operation.

5. Glycogen never disappeared entirely from the liver of animals deprived of the pancreas, except in one case, in which the liver had become as fatty as that of a goose, and in which there were only a few places to be found in which the normal parenchyma was preserved, and where the glycosuria was intense up to the death of the animal.

6. Glycosuria is never met with without azoturia and phosphaturia, whilst these last have never failed even when the first is absent.

7. Acetonuria is inconstant; and is always associated with deranged digestion. The nervous phenomena attributed to acetonuria have not demonstrated the presumed relation.

The most recent hypotheses respecting the pathogeny of diabetes are three in number: the first attributes to the pancreas two secretions—one poured into the duodenum, the digestive juice, and the other a ferment, which passes directly into the blood, so that the pancreas should be considered as a sort of blood gland (Minkowski, Lépine, Hédon, and others); the second attributes diabetic glycosuria to nervous action, but interprets this in various ways (Lancereaux, Thiroloix, Cavazzani, and others); a third hypothesis subordinates everything to grave disorders of digestion, due to deficiency of pancreatic juice and to a mechanism still little understood (Cantani, De Dominicis).

The author states that he has produced diabetes by ligaturing the pancreatic duct and detaching the gland completely from the duodenum while respecting carefully its blood supply, and he cites this in opposition to the theory of Minkowski and Lépine. Minkowski and Hédon say that diabetes is prevented or removed if a piece of pancreas is grafted in the abdominal wall, but he finds that it is not so unless the part grafted communicates with the intestine, or removal of the pancreas has not caused glycosuria; and the removal of the graft does no more.

Lépine attributes diabetes to the defect of a special ferment formed in the pancreas, whence it passes into the blood, and which he calls a glycolytic ferment; in its absence hyperglycæmia occurs. He explains the intermittences which occur in the glycosuria by the existence of reserves of this ferment, and he admits that the pancreas may not be its only source. He thinks diabetes following poisoning by veratrine or phloridzin should be attributed to over-production of sugar in the organism. He is obliged to admit that pancreatic diabetes is a complicated condition, and in order to interpret the phenomenon observed by v. Mering and Minkowski that the hepatic glycogen diminishes with rapidity in experimental diabetes, he

does not deny that in addition to glycolysis there may also be an exaggerated formation of sugar in the liver. Finally he admits that under certain conditions peptones may be converted into sugar.

Hédon, on the other hand, is convinced that diabetes due to removal of the pancreas is due neither to defect of an exterior secretion nor to injury to neighbouring parts, but is to be attributed to the suppression of a special function, which he thinks proved by the success of extra-abdominal pancreatic grafts. Yet he finds that the pancreas does not contain a glycolytic ferment; he thinks it should do so if Lépine is right. He believes that the blood of diabetic animals contains no diabetogenic substance, founding his belief on the negative result of the intra-venous injections of diabetic blood. He considers that the amount of glycæmia after ablation of the pancreas depends upon the degree of power retained by the organism to form glycogen, but in admitting this, he declares that the cause is yet to be discovered. He thinks the causes of the azoturia are the most complicated problem. It cannot always be attributed to the waste of carbo-hydrates, because he observed one dog whose glycosuria was very slight, yet cachexia and emaciation were present. The author regards Hédon as a model of impartiality, who accepts conclusions which are totally irreconcilable with one another.

Gley has tied all the pancreatic veins, and produced glycosuria three times, twice temporarily and once permanently; this he regards as supporting Minkowski's theory, but the author objects that if the operation was successfully performed it would kill the gland, and that it was followed by a positive result too exceptionally to justify conclusions.

Thirolloix at first attributed the consequences of the removal of the pancreas to injuries of the nerves in its neighbourhood, because atrophy of the gland caused by injections of paraffin into the duct, was not followed by glycosuria; but he repeated Hédon's experiment of displacing the pancreas, and twenty-five days later he removed the neuro-vascular peduncle and left a

good piece under the skin which continued to secrete normal pancreatic juice, the animal remaining in perfect health. Twenty days after this second operation intense glycosuria supervened, which he could only explain by supposing that there was sudden suppression of the internal secretion of the gland, so that he was led to adopt Lépine's hypothesis with the modification that the nerves may have some influence upon the secretion. The author does not understand how the pancreas could be reduced to a fibrous cord and yet retain this function of internal secretion.

Caparelli has observed glycosuria disappear after injecting an emulsion of pancreas in salt and water into the peritoneal cavity of a diabetic dog.

Gley and Thiroloix have triturated the pancreas with sterilised sand, and have injected the filtered extract into the peritoneal cavity of diabetic animals without any effect on the glycosuria. Moreover, the author has seen temporary disappearance of glycosuria from various operative procedures, and therefore regards Caparelli's results as of no importance. The brothers Cavazzani have observed the occasional absence of glycosuria after extirpation of the pancreas, and have started an original theory of over-production of sugar in the liver caused by neuro-paralysis of the nerve fibres of the hepatic plexus injured in the course of the operation. They believe that in diabetes the hepatic cell, under the influence of the hepatic plexus, separates the albuminoid molecules of the blood to form sugar to a greater extent than it does in normal conditions, and is induced to do this "because the alimentary albumen, in the absence of pancreatic juice, is easily decomposed and loses the power of re-uniting itself."

These writers reject the theories of Minkowski, Lépine, Hédon, and Dominicis, objecting to the last-named that, if he were right, diabetes ought to occur in all cases of ligature of the pancreatic duct, pancreatic fistula, diseases of the pancreas, which is not found to be so; and also that fasting should diminish or put a stop to glycosuria.

To this Dominicis answers that fasting does greatly reduce

glycosuria ; that ligatures and fistulæ of the duct do not absolutely prevent the pancreatic juice from reaching the duodenum, for the existence of accessory channels is well known. Moreover, he criticises their hypothesis by observing that the lesions observed in the liver are not sufficient ; they are often met with where there is no glycosuria ; while as to the nervous lesion, destruction of the coeliac ganglion has not always caused glycosuria, and no one has demonstrated that the hepatic plexus is destroyed in these cases. The author has tied the hepatic artery and the nerves which accompany it, and has obliterated the portal vein in twenty animals without observing more than a very slight glycosuria lasting three or four days. He would like to see verified the experiment of Cavazzani—viz., increase of sugar in the hepatic venæ after extirpation of the hepatic plexus by an electrical current ; but he associates this result with the glycosuria following curare, veronal, and morindin, etc.

The author's hypothesis is consistent with the facts that diabetes mellitus may become insipid, and *vice versa* ; that there is an evident family predisposition to saccharine diabetes ; that certain diathetic conditions (gout, obesity) pass into diabetes ; that diabetes is constantly associated with azoturia and phosphaturia, and frequently with acetonuria ; finally, that *post mortem* examination of the bodies of diabetics has shewn in some cases disease or destruction of the pancreas, sometimes nothing, and conversely in some destructive diseases of the pancreas there has been no diabetes.

He points out that experiments have shewn, in the first place, that severe diabetes invariably follows extirpation of the pancreas, generally saccharine, and not infrequently insipid ; but in either case the cachexia, polyphagia, polyuria, etc., are equally intense ; in the second place, that any injury may produce slight or temporary diabetes, or may suspend a pre-existing glycosuria. He admits that glycosuria may originate in various ways—by puncture of the fourth ventricle ; by the action of poisons ; by moral emotions ; by meningitis, tumours, and other brain diseases ; by alterations in the function of the digestive

tract ; in certain cases of cirrhosis of liver : but in all these the glycosuria is neither constant, intense, nor lasting. Finally, the glycosuria after extirpation of the pancreas is not constant ; sometimes it is intermittent ; but ordinarily it is intense, severe, and lasting until death. He thinks the mutability of the disease renders it impossible to attribute it to a constant, definite, anatomical lesion ; and its relation to gout and obesity makes it more logical to regard it as depending on some fundamental biological condition of the tissues which may be transmitted by heredity. The occurrence of glycosuria under the influence of emotions and Bernard's puncture prove its relation to nervous influences. It is therefore certain that the causes of diabetes are to be found in different localisations and activities of the economy. As glycosuria, whether artificial or natural, persists on a nitrogenous diet or even after prolonged fasting, it is plain that sugar is formed at the expense of the tissues of the body. It may also be formed from nitrogenous food (Lépine, Seegen, Pettenkofer and Voit). Another source of sugar is the glycogen of the organs (Krankow). This substance is found in diabetes in organs from which it is ordinarily absent, for instance, the brain ; hence we may regard it as a consequence of cell degeneration.

The basis of the author's hypothesis is the ease with which alimentary and cellular substances are decomposed. The pancreatic digestion is a *sine quâ non* for the nutrition and normal activity of all the tissues ; in its absence cachexia supervenes, and progresses to a fatal result. As sugar is present in spite of nitrogenous diet, there must be a formation of sugar by a process of abnormal disassimilation and double decomposition ; consequently the agent causing this must be sought for, and he believes he has found it in a special poisonous substance obtained from the intestine of a diabetic dog, and absent from the intestine of a healthy dog. He explains the occasional absence of glycosuria by suggesting that sometimes "these obscure processes of animal chemistry do not arrive at the formation of glucose."

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REPORTS OF SOCIETIES.

KIDDERMINSTER MEDICAL SOCIETY.

April 27th, Mr. D. CORBET, the Vice-President, in the chair.

Mr. J. Lionel Stretton read notes of a case of Extra-uterine Foetation. The patient, aged 27, had been married seven years and had four children, no miscarriages, last menstruated a week before Christmas. On February 14th, when walking across the yard, she felt sudden pain in the lower part of the bowels, and fainted. Dr. Robinson saw her and advised her removal to the hospital. On admission at 4 p.m. patient was deadly pale, extremities cold, pulse almost imperceptible. She complained of pain at the lower part of the abdomen, where a distinct fulness was felt, which in places appeared nodulated, the right side being fuller and more tender.

At 5.30 p.m. ether was administered and the abdomen opened by an incision three inches long in the middle line. A large quantity of blood clots were cleared out (about three quarts). The hæmorrhage was found to come from a small pin-hole rent in an extra-uterine pregnancy of the right Fallopian tube close to the uterus. This was ligatured and removed together with the ovary. During the operation three pints of saline solution were

injected into the left median basilic vein with marked benefit. The operation was rapidly performed and the patient returned to bed. She rallied for a time, but never fully recovered from the shock of the primary rupture, and died forty hours after the operation.

Post mortem examination six hours and a half after death. No signs of peritonitis. The uterus was enlarged and contained a decidua.

The specimen removed at the operation was shewn, the ovary exhibiting a well marked Graafian follicle.

Mr. W. Hodgson Moore shewed a case in which a compound fracture of both bones of the forearm had occurred in a child aged six. It was not seen until eight days after the accident, when there was a considerable amount of suppuration and a large surface of both bones was found to be bare. Free incisions were made and the arm put up in splints. There was very little deformity, and the bones had united firmly, allowing free movement.

Mr. J. L. Stretton shewed an ankle joint removed in the afternoon. There was erosion of the cartilages and a large patch of caries on the upper surface of the astragalus, a smaller one on the posterior surface of the tibia, and thickening of the synovial membrane, due to tubercular disease. This had existed several months, and previous incisions had been made, but thorough examination failed to discover the destructive changes in the joint which were only detected by laying it freely open prior to amputation, and even then the carious patch on the tibia was not apparent. Mr. J. L. Stretton emphasised the point that in many cases it is impossible to discover dead bone without very free exploratory operations, which should always be undertaken in suspected cases.

Dr. Evans read his paper on "Tubercular Peritonitis." He sketched the history of the disease from 1763, and contrasted the theories of its etiology and pathology of that date with those of to-day. He described in detail its symptoms and physical signs, mentioned the various methods of treatment which had

been from time to time adopted, and advocated a more frequent recourse to early abdominal section, especially when the abdomen contains fluid, while maintaining that some cases, particularly those of a plastic nature, were curable by medicinal treatment. An interesting discussion followed.

REVIEWS.

LECTURES ON GENITO-URINARY DISEASES.*

WE have here a collection of six Clinical Lectures on various subjects connected with diseases of the Genito-urinary system ; (1) Urethral Fever and Catheter Fever, (2) Treatment of Retention of Urine, (3) Gleet and its Treatment, (4) on Varicocele, (5) on Hydrocele, (6) The Treatment of Syphilis, with an Appendix of Prescriptions for Syphilis.

On perusal it is evident that we have the thoughts of an experienced practical surgeon who weighs well his words before giving utterance to them, and though there is nothing very original contained in the lectures, there are few who will not be the better for reading them.

The most valuable contributions are those on Gleet and on Varicocele, especially the former ; and although this is evidently a topic on which the author has written before, he has kept himself well acquainted with recent modifications and developments in treatment, adapting them readily while retaining older plans, the virtues of which are apt to be forgotten.

In reviewing a book of this kind it is impossible but that there should be points upon which the reviewer and the author would hold divergent opinions. We cannot, for instance, endorse the use of what is practically a seton in the radical cure of hydrocele, nor do we regard the coudée catheter as the first and most

* Lectures on Genito-Urinary Diseases. By J. C. Ogilvie Will, M.D., C.M., F.R.S.E., Consulting Surgeon to the Aberdeen Royal Infirmary, and Examiner in Surgery in the University of Aberdeen. With numerous Illustrations. London : The Scientific Press Limited, 1894.

desirable instrument to be used for prostatic retention. If this fail, the full-sized silver catheter is next advised, and the soft rubber catheter is mentioned third as being capable "sometimes" of relieving this form of retention. The virtues of the last instrument are greater than Dr. Will appears to recognise, and we would go so far as to say that *always* the soft rubber catheter should first be used if it is available, and that nearly always it will be found efficient to the patient's great advantage.

Dr. Will is rather a hero-worshipper, a quality we do not find fault with; it is not too common in the present day, but it has led him to exalt one of his heroes, viz., the late Sir Andrew Clarke, to a position which we do not think belongs to him as a teacher on Catheter Fever. In dealing with this difficult question the lecturer divides it into two distinct subjects, Urethral Fever and Catheter Fever. The first is such as occurs in cases of stricture of the urethra in which an instrument has been passed. Some hours after the patient has a rigor, high temperature, general pains, and is practically well again in twenty-four hours, the typical acute attack with which all surgeons are so familiar. We looked with interest to see what explanation the author gives of this remarkable condition. He rejects several theories; absorption of urine at the site of a wounded stricture, germ infection introduced by the instrument used, a condition of damaged kidneys pre-existing, and then he gives his own explanation, which with all deference, we can only characterise as futile. He says "We must therefore look elsewhere for an explanation, and I think we can find it in the reflex theory. I believe that a local irritation, felt or unfelt, is produced at the time of instrumentation, and that this leads to the propagation of certain disorderly reflex discharges; by this I do not mean a neurosis leading to perverted metabolism with the manufacture and subsequent absorption of noxious alkaloids, but that urethral fever is simply an exaggeration of the shudder seen when, after long repression of the desire to urinate, a perfectly healthy man empties his bladder, or of a similar condition seen any day in the horse."

Of Catheter Fever, such as is seen in prostatic cases, the infection theory is adopted, but yet the influence of a former theory is not altogether got rid of. Dr. Will regarded this condition formerly as due to a mechanical cause, viz., the sudden withdrawal of urine leaving the walls of the bladder unsupported, setting up an inflammatory change in the bladder, which then extended to the kidneys. This is held still to play a part in the disaster, which sometimes follows the use of the catheter in such cases as above-mentioned. For this reason, Dr. Will urges most strongly that the bladder should not be completely emptied when the catheter is first used. If it is, then germs from the air are said to gain ingress to the bladder *via* the catheter by aspiration, and to find in the stretched and atonic mucous membrane a nidus in which they can develop. The utmost stress therefore is laid upon the importance of only partly emptying the bladder. We cannot help thinking that the author has mis-construed matters. First of all, air-born germs are probably far too few to be responsible for most of the mischief, aspiration of air down the catheter, if the instrument be properly managed, ought never to take place, and if infection occurs it is probable that the chief factor in its proving fertile lies in the stale urine retained in the bladder.

Notwithstanding the points we have commented on as blots in the general excellence of the lectures, we believe they will be found valuable both by students and practitioners.

A TREATISE ON RUPTURES.*

THIS book well fulfils the intention of the author, viz., to supply the most essential facts concerning ruptures. In future, it must be regarded as the book for reference on this subject; we have nothing but praise to bestow upon it.

Mr. Macready has been one of the surgeons at the Truss

* A Treatise on Ruptures. By Jonathan F. C. H. Macready, F.R.C.S., Surgeon to the Great Northern Hospital, to the City of London Truss Society, etc. London: Chas. Griffin and Co.

Society for a considerable number of years; he therefore brings the careful statistics kept by that Society before us, and in a manner too that has never before been done. The book is divided into two parts; the first, dealing with ruptures when the function of the bowel is undisturbed; the second, when the function of the bowel is interrupted.

It will be surprising to many surgeons to find that out of 21,000 cases of hernia, the percentage is—male inguinal 83·5; female inguinal 8·5; female femoral 5·9; male femoral 2·1; thus shewing conclusively that inguinal hernia is more common than femoral even in women. During the early years of life inguinal hernia is found almost alone, whilst in the child-bearing period femoral cases are nearly equal to inguinal; and after 50 are slightly in excess. Other series of tables are given, but we should have been glad to have seen a table of hernia in Jewish patients, shewing whether early circumcision has any effect in reducing the number of ruptured in that section of the community. The question as to whether phimosis is a predisposing cause of hernia is not even discussed.

It is impossible to refer at length to the many interesting points raised by the author. The anatomy of hernia is well done. Adhesions in a hernial sac are arranged under three classes:—(1) agglutination; (2) the fibrous; and (3) the fleshy. Partial enterocele is probably very frequent; and Meckel is quoted as saying that most enteroceles at their creation are incontestably of this description; they are more common in femoral than inguinal hernia, and in every case where the ring is rigid and firm, as in the obturator variety, amounting in it to a proportion of 41·5 per cent. Tables are given shewing that in 15 years at the Truss Society, one or both ovaries were found in a hernial sac in 174 patients. In four-fifths of these this condition occurred first in children under five years of age. Between the years 1877 and 1888, as many as 824 cases which had been mistaken for hernia were seen at the Truss Society, a rather significant remark.

The chapters on the construction and application of trusses

are particularly well done, and will thoroughly repay careful perusal. Speaking of radical cure for large irreducible hernia, the author does well to point out that it is a very fatal operation, for the subjects are usually fat, flabby persons, past the middle period of life. The mortality after radical cure at three large London hospitals is given as 7 per cent., much more than it ought to be. Perhaps the subject of radical cure is the least thoroughly done part of the book. Three varieties of congenital umbilical hernia are given—(1) when the gap in the abdominal wall is small; hernia of the root of the cord: (2) when the gap is of moderate size; sacculated: (3) when the deficiency of the abdominal wall is very great; eventrations. It is undesirable to operate in children with this variety of hernia, as they almost invariably get well without.

The second part, dealing with strangulation, is most complete and thorough. When strangulation has taken place, the stricture is more often in the sac wall than outside it, and much more so in inguinal than femoral hernia. The increase of tension in a strangulated hernia is given as due to fluid effused into the lumen of the gut and into the sac. We are particularly pleased to see that long continued taxis is so strongly condemned; five minutes at most ought to suffice to determine whether the hernia is reducible. Opening the sac is advised in all cases except in very large herniæ, where it adds considerably to the danger of the operation. We are unable to refer at length to the treatment of gangrenous hernia, but it may be noted that division of the stricture is advised as a routine practice, in gangrenous hernia, when fæces and flatus do not readily pass at once. It will be found better generally to form an artificial anus rather than to attempt resection of the intestine, owing to the usually collapsed state of the patient. The book is well printed, containing almost innumerable references, many good illustrations and 24 most excellent and artistic plates.

DISEASES OF THE SKIN.*

THIS is one of the Clinical Manual Series published by Cassell & Co., in the familiar blue binding. It is essentially what Dr. Morris states on the title page—an outline of the principles and practice of dermatology—and we think it will prove a valuable aid to the student and practitioner in the study of diseases of the skin. There is a marked “up-to-date” air about the whole book, and although Dr. Morris’s references to larger and fuller works are very complete, the masterly manner in which he places the newest views of authorities before the reader will be highly appreciated by those who have not time to keep themselves posted up in the literature of dermatology. We are very glad to see that the writer uncloaks at the outset that bogey to all students of dermatology, the elaborate and unnecessarily complicated nomenclature, fairly revelled in by some authorities. He shews clearly that in many cases the terms employed are more those of description than of classification. The section on erythema multiforme is a good example of this practical view of looking at diseases of the skin, and we could mention several others did time allow. The paragraphs on treatment are probably as good as anything in the book, and we venture to think that many will thank Dr. Morris for his chapter on the treatment of pruritus. The list of rashes produced by various drugs is complete and capitally arranged, with a sense of proportion that cannot fail to appeal to many readers. We heartily agree with the views expressed with regard to the near relation of erysipelas and the suppuration of wounds, and consider that the fact that the streptococcus of the two conditions is held as identical by most observers at the present time ought to be more widely known than it is. The book is illustrated by eight chromo-lithographs and numerous woodcuts. The former are particularly successful, considering the extreme difficulty of representing in colours the appearances of diseases of the skin.

* Diseases of the Skin. By Malcolm Morris. London : Cassell & Co.

MEDICATED BATHS IN THE TREATMENT OF SKIN DISEASES.*

IN this small volume Dr. Phillips has collected much useful information. The author of a book who confines his remarks to a single line of treatment in a class of diseases puts himself necessarily at some disadvantage, but it may at once be said that Dr. Phillips has produced a handy little work of reference, and that the practical arrangement of the material adds greatly to the usefulness of the book. The remarks on the general effect of baths on the healthy and diseased skin, though not new, are comprehensive, and the detailed directions for preparing various medicated baths will be welcome to many who have not time or opportunity to consult larger works. The third part of the volume contains in alphabetic arrangement the names of many dermatoses with the appropriate bath-treatment of each annexed. In this section the remarks on eczema are valuable. The information generally is reliable; but we are not disposed to agree with the author in the doubts which he throws upon the usefulness of in different thermal waters in the treatment of scars.

WRIGHT'S PRESCRIPTION BOOK.†

THIS most useful publication contains 100 pages for prescriptions, with a sheet of copying paper by means of which a copy is taken of every prescription written. The paper is thin, and the book therefore is of sufficiently small size to be carried easily in the coat pocket.

* Medicated Baths in the Treatment of Skin Diseases. By Leslie Phillips, M.D.

† Wright's Prescription Book. Bristol: J. Wright and Co. 1894.

Obituary.

JOHN CLAY, M.R.C.S.

WE have barely time to include in the present number a notice of the death of Professor John Clay, which occurred at his house in Steelhouse Lane, on the morning of Tuesday, June 26th, in the seventy-third year of his age. For some time Mr. Clay's health had given some anxiety to those about him, but it was only during the last ten days of his life that any immediate fears were entertained. To those, therefore, outside the circle of his intimate friends the news of his death has come with painful suddenness.

Mr. Clay was one of the most distinguished pupils of the Birmingham Medical School, where he obtained the greater part of his medical education. In later life he gained a high reputation as an original writer, and his thesis on "Ovariectomy: Pathology and Diagnosis of Cases suitable for this Operation, and the Best Method of Performing it," gained for him in 1866 the Jacksonian Prize of the Royal College of Surgeons; whilst two years later the Fothergill Prize of the Medical Society of London was awarded to him for his essay on "The Diagnosis and Treatment of Non-malignant Tumours of the Uterus."

Mr. Clay, from an early period of his professional life, took an especial interest in obstetrical and gynæcological work, as is evident from the subjects of the above-mentioned essays, and in 1870 was elected first Honorary Obstetric Surgeon to the Queen's Hospital. After nineteen years' faithful service of this institution, he was appointed Honorary Consulting Obstetric Surgeon. He also held for many years the Professorship of Midwifery in the Queen's College, and, indeed, at the time of his death continued to hold the same position in the Queen's Faculty of Medicine of the Mason College.

Mr. Clay's private practice has been a large one, and he has always held a high position in the affections not only of his

patients, but of many intimate friends. The town can ill afford to lose in so short a period the services of two men of the reputation and ability of Mr. Clay and Mr. Jolly.

ROBERT JOLLY, F.R.C.S.E.

WITH deep regret we have to record the death of Robert Jolly, F.R.C.S.E., Senior Surgeon to the General Hospital. For some months a renal condition had caused his medical advisers great anxiety and grave apprehensions as to his complete recovery; but his general condition so greatly improved that, to his non-medical friends, his return to active practice seemed assured. Having derived great benefit from a sojourn at Bournemouth some years ago when suffering from the same condition, he resorted there again, and for some time made good progress; but a chill aggravated the kidney mischief, and he died there on the 9th of last month in the 53rd year of his age.

Mr. Jolly commenced his professional career in Birmingham as House Surgeon to the Queen's Hospital. In that capacity he shewed himself a careful and capable surgeon and a kind man. On quitting that institution to practise in the town, he was taken up by members of the committee of that hospital, and by their patronage and influence he soon found himself in a large and lucrative practice. As Professor of Anatomy at Queen's College he greatly excelled, and won the hearts of his pupils, who did not forget their teacher when they went into practice. In 1870 he was elected Honorary Surgeon to the General Hospital, where he devoted himself to the welfare of his patients, and was at the time of his death Senior Surgeon and Chairman of the Medical Committee. Amongst other posts held by Mr. Jolly may be mentioned those of Consulting Surgeon to the General Dispensary and Surgeon to the Police Force. His funeral at Kingswood Cemetery testified how greatly beloved he was by his numerous patients and large circle of friends.

PUBLISHERS' DEPARTMENT.

New Inventions, Drugs, etc.

MESSRS. BURROUGHS AND WELLCOME send us specimens of two new preparations. *Loretin*, or Iodo-oxyquinoline-sulphonic acid, is intended to serve as a substitute for Iodoform, which it is believed to excel in its antiseptic properties. It is almost completely free from smell of any description, and in this respect its superiority is certainly beyond doubt. It is claimed also that *Loretin* is free from irritating properties, and that no toxic effects result from its absorption. *Migranin* has been introduced by Dr. Martin Overlach as a specific for the various forms of nervous headache. It is either a compound or mixture of Antipyrin and Citrate of Caffeine. We have had no opportunity of testing its action for ourselves.

New Books, etc., Received.

Diseases of the Nose and Throat. By F. DE HAVILLAND HALL, M.D., F.R.C.P. Lond., Physician to Out-patients and in charge of the Throat Department at the Westminster Hospital. London: H. K. Lewis. 1894.

Hydatid Disease. By the late JOHN DAVIES THOMAS, M.D. Lond., F.R.C.S. Eng., formerly Physician to the Adelaide Hospital. Vol. ii. Edited by Alfred Austin London, M.D. Lond., Physician to the Adelaide Hospital. Sydney: L. Bruck. 1894.

Analyses of Twelve Thousand Prescriptions. Compiled by W. MARTINDALE, F.C.S. London: H. K. Lewis. 1894.

A Serious Fallacy attending the Employment of Certain Delicate Tests for the Detection of Serum-albumin in the Urine. By D. D. STEWART, M.D., Clinical Lecturer on Medicine at Jefferson Medical College, Philadelphia.

Further Remarks on the Occurrence of a Form of Non-albuminous Nephritis other than Typical Fibroid Kidney. By D. D. STEWART, M.D.

The Harrogate Mineral Waters. New Analyses, with Observations. By ARTHUR ROBERTS, M.D., D.P.H.

Gout, and its Relations to Diseases of the Liver and Kidneys. By ROBERT ROOSE, M.D., LL.D., F.C.S., F.R.C.P.E. Seventh edition. London: H. K. Lewis. 1894.

Historical Notes on the Question of the Value of Traction in the Treatment of Hip Disease, Practical Points in the Treatment of Hip Disease, and a Contribution to the Treatment of White Swelling of the Knee. By A. B. JUDSON, M.D., Orthopædic Surgeon to the Out-patient Department of the New York Hospital.

Reports of the Medical and Surgical Registrars and Pathologist of the Middlesex Hospital for the year 1892. London: H. K. Lewis. 1894.

Teno-suture, Tendon Elongation, and Shortening by Open Incision. By H. AUGUSTUS WILSON, M.D., Clinical Professor of Orthopædic Surgery in the Jefferson Medical College, etc.

Essentials of Diseases of the Eye, Nose, and Throat. By EDWARD JACKSON, A.M., M.D., Professor of Diseases of the Eye in the Philadelphia Polyclinic and College for Graduates in Medicine; and E. B. GLEASON, S.B., M.D., Surgeon in charge of the Nose, Throat, and Ear Department of the Northern Dispensary of Philadelphia. Second edition, revised. Philadelphia: W. B. Saunders. 1894.

The Blind as Seen through Blind Eyes. By MAURICE DE LA SIZERANNE, Director of the "Valentine Haüy Conferences." Authorised translation from the second French edition by F. Park Lewis, M.D. New York and London: G. P. Putnam's Sons. 1893.

Non-Nocere. By A. JACOBI, M.D., New York.

The Physiology of the Carbohydrates: Their Application as Food and Relation to Diabetes. By F. W. PAVY, M.D., LL.D., F.R.S., F.R.C.P., Consulting Physician to Guy's Hospital. London: J. and A. Churchill. 1894.

On Blinding of the Retina by Direct Sunlight. By GEORGE MACKAY, M.D., F.R.C.S.E., Assistant Ophthalmic Surgeon to the Royal Infirmary, Edinburgh. London: J. and A. Churchill. 1894.

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THE
BIRMINGHAM MEDICAL REVIEW.
AUGUST, 1894

ORIGINAL COMMUNICATIONS.

THE DEVELOPMENT OF THE GERM THEORY.

PRESIDENT'S ADDRESS, ANNUAL MEETING OF THE
BIRMINGHAM AND MIDLAND COUNTIES BRANCH OF THE
BRITISH MEDICAL ASSOCIATION, JUNE 14TH, 1894.

BY H. LANGLEY BROWNE.

Gentlemen,

As this is one of the occasions upon which custom decrees the breaking of the rule that silence is golden, and having nothing in the way of original research or discovery to bring before you, I think it may be not uninteresting if I draw your attention for a few moments to the "Modern Development of the Germ Theory of Disease."

The theory itself is by no means a new one, though the proofs of it have only been forthcoming recently and even yet are not complete. Linnæus published an article in 1730 attributing smallpox, measles, plague, syphilis, dysentery, and whooping-cough to the agency of minute animals. Ehrenberg in 1828 found numerous organisms in water and dust, and designated them "infusion animals;" and in remarking upon the highly organised structure, astonishing minuteness and fecundity of these animals, argued that they might cause many of the diseases affecting man. And Schwann in 1837 declared that the atmosphere was laden with germs of fermentation and putrefaction.

In 1839 Sir Henry Holland published in his "Medical Notes and Reflections" an article on the "Hypothesis of Animalcule Life as a Cause of Disease"—an article so clear and logical that I propose to review it at some length. He thought that certain diseases, and particularly some of the epidemic and contagious ones, were derived from some species of animalcule life existing in the atmosphere under certain circumstances, and capable by application to the lining membranes of acting as a virus on the human body. He maintained that there are conditions of animal life in the atmosphere as minute, as numerous, as variously diffused as those, visible by the aid of the microscope, in water; and that we are carried so far by our actual knowledge of these minute forms of existence, and by such uniform gradations of change, that we must not suppose the series to stop because we can no longer draw evidence from our own senses. This would imply a sudden breach of continuity such as we find in no other part of the scale of animal life, and be contrary to the opinion of Locke—"that in all the corporeal world we see no chasms or gaps."

Admitting, however, that even if we never reach actual proofs of the existence of these minute forms of life, be they insect or of other kind, he argues that the probability of their existence is little lessened by the failure, considering the obstacles which have to be surmounted. And, if existing, we may presume that they have many points of affinity with well-known insect genera, such as sudden generation, at irregular and often distant periods, under certain conditions of season or locality, and the diffusion of the swarms so generated over wide tracts of country, often following particular lines of movement. Whatever is true or peculiar to the habits of insects or the forms of animalcule life obvious to our senses, is likely to be equally applicable to those whose minuteness removes them further from our observation. Their generation may be presumed to be evermore dependent on casualties of season or place, their movements determined by causes of which we are less cognisant, and their power of morbidly affecting the body to be in some proportion to their multitude and minuteness.

Claiming that these considerations are of great interest to the general theory of disease, he says they have close reference to contagious exanthemata in particular; and though not sanctioned by any direct proofs in relation to these diseases, yet fully justify the prosecution of the research through every possible channel, and render plausible at least the arguments of those who have ventured to support the opinion that they depend upon the action and phenomena of parasitic life.

Having regarded the question as to whether the epidemic tendency of carbuncular boils has not depended on causes from without, giving hydrophobia and glanders as instances of diseases conveyed from animals to man, noting that epidemic influenzas are in no way produced by atmospheric states or changes, he then takes up the subject of cholera, and proceeds in the most masterly manner to elucidate his theory by the remarkable phenomena shewn in this disease.

After tracing the history of its diffusion for twenty years under every climate, in every place, the disease being always absolutely identical, he states that we have not the smallest reason, from knowledge or analogy, to assume that any gaseous, mineral, or vegetable matter diffused from the atmosphere or exhaling from the earth, could create a disorder or spread it in a manner so remarkable, over the globe; and equally inapplicable, for the same reasons, is every theory founded on the temperature, habits, food, or other conditions of particular communities.

Further, he says it must be kept in mind that we have to deal here with a migrating malaria, a wandering cause of disease capable not merely of being diffused through the atmosphere and conveyed along vast tracts or lines over the globe, affecting different places with a varying intensity which no known condition of earth, atmosphere, or human habits can explain, but also possessing the power of reproducing itself, so as to spread the disorder by fresh creation of the virus which first evolved it. This faculty of reproduction stands foremost among the conditions essential to a right theory of cholera. All our reasoning stops short unless under recognition of the

fact so stated. Without it there would seem a physical impossibility in explaining the phenomena of the disease, and particularly its distribution and succession in different places and seasons. A thorough study of these singular details of its history, keeping this principle constantly in view, will not only confirm and illustrate the latter, but will lead us to organic life as the only conceivable source and subject of such reproduction. It is against all the analogy of nature to suppose this power to belong to inorganic matter. Either animal or vegetable life, in their simpler forms, must furnish the material cause we seek for, since to them alone can belong the faculty of renewing indefinitely the active cause of the disease.

These enlightened views were held by Sir Henry Holland, and give the fullest early account of the germ theory of disease which I am able to bring before you. They form a brilliant example of the scientific use of the imagination, and although again very forcibly brought forward by Henle in 1840, it was a theory hardly accepted by the profession, and very many years elapsed before any proofs were forthcoming in support of it.

Indeed, if we pass over a period of thirty-six years and take von Ziemssen's "*Cyclopædia of Medicine*," published in 1875, we find Liebermeister in his introduction to "*Infectious Diseases*" recording nearly the same views without being able to bring forward much more actual proof of them. He refers to the hypotheses produced up to our time by both the learned and unlearned, most of them not very poetic, but about as vague as the descriptions of the old poets who wrote of the "death-dealing shafts of Apollo," or as the views advanced in a well-known novel where cholera is associated with the footsteps of the Wandering Jew. He mentions that in all great epidemics since the time of the Athenian plague, there has been a revival of the popular notion that the wells were poisoned, and says that this idea had certainly the advantage over most of the hypotheses which were clothed in scientific guise, inasmuch as it supposed a real cause.

Referring to the theory of *contagium vivum*, and alluding to

its antiquity, he shews how in later times it had been maintained with decided ill-luck. The statements of the first observers who believed that they had found the organisms that were at the basis of all epidemic diseases, were soon recognised as too hasty or overdrawn: the animalculæ of smallpox, of cholera, and of choleraic fungi, proved to be quite common infusorial organisms, such as can be found in all decomposing substances. About the middle of the present century the judgment of condemnation of this theory was almost unanimous; it was regarded pretty generally as an unreal, unscientific play of fancy. Among the medical authorities Henle was probably the last who elaborated the theory of a contagium vivum. This he did in 1853, with as much modesty as thoroughness, though even as early as 1840 he had maintained it with convincing logic.

Liebermeister gives very fully his own reasons for maintaining the correctness of the theory—new investigations on the appearance, mode of propagation, and significance of low organisms; the fact that the poisons of infectious diseases can reproduce themselves to an unlimited extent; that with a minimum quantity of vaccine virus we can vaccinate a child, from this child ten, and so on *ad infinitum*. As with vaccine virus so with variola, measles, scarlet fever, typhus, etc., the poison can be multiplied to an endless extent.

Among chemical actions it is chiefly the processes of fermentation and decomposition which, by their capacity for extension by means of the smallest possible quantity of matter, shew the most striking analogy to contagious diseases; and we know now that these ferment processes are all associated with the multiplication of low organisms, so that the theory of fermentation becomes virtually identical with the theory of a contagium vivum.

Liebermeister insists on the fact that contagious diseases never originate spontaneously, but are dependent on a transmission—a continued propagation of a disease poison. He notes also that the contagious diseases of the silk-worm have been proved to be parasitic, and the history of the development

of the parasite has been followed pretty thoroughly; but he omits altogether any reference to Pasteur, whose work this was; and in his search for proofs for his theory, is apparently ignorant of the work of Lister in this country.

Immense advances have been made since 1875 in the discovery of the special micro-organisms of the diseases then recognised as infectious, and many additions have been made to the list of these latter. The denizens of this invisible world, which have so long escaped observation, are now being dragged into the light of day and subjected to the closest investigation. The study of micro-organisms has become a necessary part of medical education, and attempts at classification have been made, and many terrible and prodigiously long names coined to express withal the groupings, functions, and forms of these little beings.

To enable students to pursue these studies with greater ease, the German Government spent £12,000 in bringing the lens to a higher state of perfection, with the result of obtaining one absolutely achromatic. For the first year they kept the secret of this wonderful lens, and then gave it to the world. With such a lens, and by staining the objects under the cover glass, it is easy now to detect the presence, and study the ways and habits, of these micro-organisms.* It is undoubtedly to Pasteur that the credit is due for the early discoveries in bacteriology. He proved that not only did water teem with life—this had long been known—but that the air around us was also filled with germs of every kind. Without laying claim to being the first discoverer of germs in connection with disease, he was the first to recognise the vast importance of these minute organisms in the economy of nature. It was while working at molecular physics that the germ theory took root in his mind, and caused him to pursue the studies on fermentation which eventually led to the investigation of “ferment” diseases affecting human beings and cattle. He divided micro-organisms into two great classes—the ærobic and the anærobic—those which require free

* “The Realm of the Microbe.” Priestley.

oxygen for their existence, and those which are killed by it. The former begin their work on the surface of things, their mission being to clear the earth by a process of slow combustion of all that is dead; the latter, working simultaneously, spring into activity underneath the surface of putrescible matter, and die on exposure to the free oxygen of the air, and are in their turn swept away by those on the surface. Thus the two great classes of minute living organisms co-operate towards the fulfilment of a common end, the one beginning work which the other takes up and completes. They also attack our plants as parasites, bringing degeneration and death to their hosts, and at times cause the severest diseases in the lower and higher animals, and threaten even man himself with fatal epidemics. On the other hand, but for their united efforts we should cease to live, for the earth would be littered with fallen débris and organic matter of every kind also, which it is their duty to transmute into the very elements which are essential to life.

Pasteur had discovered that diseases affecting beer or wine were due to microbes which reached the vats through the air, and that no disease appeared if the air were filtered or sterilized. He had established the vitality of all ferments, harmless or noxious, and had proved that the spores were carried to their respective breeding grounds through the pollen of flowers or dust of the air. This was the first true indication of how disease travelled, and that it was intangible, invisible, and belonged to the lowest forms of vegetable life. He then turned his attention to the disease affecting silkworms which was then threatening to extinguish a vast industry, and by a series of the most careful experiments proved that this disease was of two kinds, both depending upon micro-organisms. In his investigations he came upon some very interesting points as to the mode of infection, which threw much light upon all diseases, whether affecting animals or human beings. First, that in the eggs laid by a diseased moth the germs could maintain their vitality when thus enveloped and protected from the outer air, and so could transmit the disease by heredity. Secondly, that climbing over

each other after having crawled over infected leaves they would inflict occasional pricks with the sharp hooks on their legs, thus causing direct inoculation of the disease ; and thirdly, that in a perfectly healthy state the digestive functions of silkworms were so active that the germs of the disease were carried away quickly or destroyed in the same manner as the leaves in the process of digestion ; but that if from any cause the digestion of the worms be impaired the germs were able to multiply rapidly and the worm was doomed to perish.

By destroying the infected eggs and the worms suffering from hereditary weak digestion, and by improving the hygienic conditions of the environment, he was able completely to stamp out the disease and to restore the silkworm industry to its former prosperity.

Lemaire, proceeding upon Pasteur's lines, after proving that the presence of carbolic acid was inimical to the life of higher plants and animals, carried his researches further, and found that the lower organisms were similarly affected by the same material, and that the addition of a small quantity of carbolic acid to fluids in which putrefaction and fermentation would ordinarily take place, prevented the incidence of these processes ; and reasoning that disease processes, such as pus formation, were the result of fermentations or decompositions brought about by the action of germs, he concluded that they might be prevented by similar treatment, and he actually applied this antiseptic treatment successfully on the wounds of the human subject and of the dog.

Lister independently came to the same conclusions ; but owing to the difficulty of killing the germs after they had once made their way into the tissues, he recognised the absolute necessity of preventing such organisms gaining access to the wounds at all, and founded his well-known antiseptic treatment for the attainment of this end.

Koch, Klein, Klebs, Nicolaier, Pasteur, and many other noted men have been at work upon this branch of pathology, and specific microbes have been recognised as the cause of

disease in anthrax, relapsing fever, actino-mycosis, thrush, ophthalmia, enteric fever, cholera, diphtheria, gonorrhœa, glanders, tetanus, tuberculosis, influenza, cerebro-spinal fever, dysentery, diarrhœa, erysipelas, foot and mouth disease, hospital gangrene, hydrophobia, malarial fever, measles, mumps, scarlet fever, yellow fever, pneumonia, phagedena, puerperal fever, and pyæmia. In chickenpox, cowpox, smallpox, plague, syphilis, typhus, and whooping cough no true specific microbe has yet been discovered, but there is no reason to doubt that they exist.

Probably Koch's researches and discovery of the cause of tuberculosis, in 1882, and of cholera, in 1884, are the most important. In fact, so much importance has been deservedly attached to Koch's work that, when a few years ago he propounded a method of treating tuberculosis by the subcutaneous injection of a preparation composed of the toxins produced by the action of its bacillus, his proposition was received with universal enthusiasm. Unfortunately this treatment has not fulfilled its promise; but the attention then drawn to tuberculosis has added immensely to our knowledge of the disease.

Owing to the development of bacteriology, surgeons especially have had to extend and enlarge their ideas of infection, and make many alterations in their pathology. Every true inflammation, various forms of necrosis and suppuration, the abscesses, the phlegmonous and purulent inflammations, boils, carbuncles, osteo-myelitis, suppurative arthritis, endo-cranial suppuration and brain abscess, empyema, suppurative pericarditis and peritonitis, septicæmia, pyæmia, erysipelas, tetanus, hydrophobia, and the multiple forms of tuberculosis, anthrax, and glanders we now know to be infection-diseases due to the presence of microbes. These microbes are in the air, the water, and the soil, in our immediate surroundings, in our dwellings, and in our food—present as our constant companions, and at times as our dangerous foes. The entrance of these germs is most easily effected when there is any abrasion, and thus it was in wounds that the septic influence of these microbes was most

apparent, and it was to their exclusion from wounds that attention was first turned.

Lister, with a combination of experimental resource, patience and brilliancy almost unparalleled in the history of surgical science, step by step built up a theory and practice of antiseptic surgery: a theory and practice which rapidly revolutionised the treatment of wounds and the routine of ward management. He introduced a system which has affected the practice not only of those who believe in its accuracy, but of those who cannot accept all the details but have nevertheless adopted its principles. He proved conclusively, and his proofs have been confirmed by many others, that ordinary cleanliness in the dressing of wounds, either made or treated by the surgeon, was not sufficient, but that the use of some kind of antiseptic was absolutely necessary to avoid the risk of septic infection. Surgery and its subjects owe to Lister a debt which can never be repaid.

The germs may also find an entrance through the skin and hair follicles and give rise to localized centres of infection, such as boils, carbuncles, and different forms of cellulitis; or they may be swallowed or inhaled, be taken up and circulated by the leucocytes and deposited at any seat of injury or irritation; and as these germs are constantly present under ordinary conditions of life their effects would certainly be much more constantly in evidence were there not some natural safeguarding influence. It has long been known that certain cells in the living body are capable of removing absorbable aseptic substances, such as catgut ligatures, etc. Metschnikoff introduced the term phagocytosis to designate the process by which the leucocytes and other cells destroy or digest pathogenic micro-organisms, and the cells which perform these functions he calls phagocytes. The leucocytes are the ordinary police intrusted with the duty of taking up unauthorised intruders, but in moving them on, sometimes let them escape. But the other cells, the mucous corpuscles, connective tissue cells, endothelia of blood-vessels and lymphatic vessels, alveolar epithelium of the lungs,

and the cells of the spleen, bones, marrow and lymphatic glands, may all be enrolled as special constables to repel an invasion in force. When the struggle between a microbe and a phagocyte turns out in favour of the latter, the microbe does not multiply in the protoplasm, or ceases to do so before the protoplasm is destroyed, and as the microbe cannot leave without dissolution of the cell it remains within its narrow confines and is destroyed either by some as yet unknown chemical substance or dies from starvation; in either event the vitality of the cell is not impaired and the microbe disintegrates or disappears. If the conditions for the growth and development of the microbe in the protoplasm of the cell are more favourable, intra-cellular multiplication of the microbe takes place; the ptomaines which are eliminated produce coagulation—necrosis in the protoplasm, the cell disintegrates, and the intercellular culture is liberated in an active condition.

In cases of unsuccessful warfare of the phagocytes against invading micro-organisms the mechanical obstruction composed of emigration corpuscles and embryonic cells is broken down; and the rapid increase of micro-organisms at the seat of inflammation gives rise to extensive local and often general infection. From a practical standpoint it can be said that all therapeutic measures which influence favourably the process of phagocytosis in the broadest meaning of this word are calculated to exert potent influence in arresting or limiting the infective processes. For example, the application of counter-irritants around an inflamed centre would cause an active immigration of leucocytes, and it is probably upon this that their well known usefulness depends.

In addition to this *vis medicatrix naturæ* just pointed out, we can do a very great deal for our own protection, and the old adage that prevention is better than cure points out to us the lines upon which we should proceed. It is in the field of preventive medicine we have done most and have still much to do. The personal care of the health, the notification and isolation of disease, the disinfection of disease areas, the preventive

and curative inoculations, the inspection of our food supplies, the drainage and ventilation of our soils and houses, the establishment of laboratories in connection with our Public Health Departments for studying the history of infectious diseases in man and animals; in fact the improvement of every condition of life leaves a large field still open for our work.

The author of "Civilization, its Cause and Cure," says: "If the extent of the national sickness is such that we require 23,000 medical men to attend to us, it must surely be rather serious! and they do not cure us." Well, if all these medical men will believe in the germ theory of infection, that these germs do not exist only in the brains of those who discover them, and if they will thoroughly act up to such a belief, the national condition may be greatly changed for the better, if not by doing away with all the ills that flesh is heir to, at least by considerably diminishing the number of those which are due to infection.

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 - Public Health Problems. Sykes.
 - Surgical Principles. Senn.
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NOTES OF NINE CONSECUTIVE CASES OF EXTIRPATION OF THE ENTIRE UTERUS FOR CANCER, WITH REMARKS.

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Case 1. Patient of Dr. Russell, Heaton.—Mrs. S, æt. 42, mother of three children; eldest 23, youngest 10.

History.—One year and seven months ago bleeding from the womb suddenly commenced, and up to three weeks from the present date was of daily occurrence, sometimes more and at others less in amount. She has had no pain except in the bladder, which has caused her to get up six or seven times at night to pass water. Before the present illness she had good health. Latterly she has lost weight quickly. There is no family history of disease.

Present condition, November 28th, 1891.—The patient looks ten years older than she is. Lips and conjunctiva anæmic. All the viscera sound. The urine normal. Nothing can be felt in the bladder, and no bleeding followed free manipulation of it with the sound.

P. V.—The cervix is hard, nodular, and ulcerated. Os admits tip of index finger. A small old laceration is present on the left side. The vagina and broad ligaments appear to be healthy. The uterus is freely movable.

Operation, December 1st, 1891.—The whole uterus was extirpated per vaginam, the broad ligaments being secured by a series of silk ligatures, which were cut short. A section of the uterus shewed that the disease extended up the cervical canal to a point beyond the internal os.

After-progress was uneventful, and the patient went home well on December 14th, 1891.

Case 2. Patient of Dr. Russell, Heaton.—Mrs. H., æt. 57, married three times, one child to her first husband thirty-five years ago.

History.—Her illness commenced in July, 1891, with bleeding from the womb and pain. The bleeding was profuse, and her uterus was scraped. The bleeding then ceased for about three weeks, when it returned. Between two and three months after the first operation the uterine cavity was again scraped. For a fortnight after this the discharge ceased, and then re-appeared as badly as ever, and was accompanied by, or alternated with a bad-smelling watery discharge, which escaped in gushes. Seven weeks ago I scraped the uterus for a third time, keeping the scrapings for microscopical examination. This proved the case to be one of uterine cancer, and I advised, as Dr. Russell had, total extirpation. The discharge did not re-appear for more than six weeks, and when it returned, the patient, being persuaded that there was nothing else for her, decided to undergo the proposed operation. She has been a healthy woman until this illness commenced, though for the last fifteen years she has partaken very freely of spirits. Menstruation ceased entirely at fifty-two years of age, and for four-and-a-half years before the bleeding began she had seen nothing. Family history good.

Present condition, February 8th, 1892.—The patient is a stout, florid-complexioned woman, with anæmic mucous membranes. All viscera healthy. Vagina and cervix small, but healthy. A foetid brown discharge escaping from os. Body of uterus enlarged. Sound passes four inches causing bleeding and pain.

Operation, February 9th, 1892.—The vagina was narrow, and the uterus could not be drawn down, consequently the operation was tedious and difficult. After half-an-hour's hard work I despaired of getting the uterus away by the vagina, and had suggested completing the operation through the abdomen. Dr. Hume, who was assisting me, then took a turn, and succeeded, by anteverting the uterus through the anterior wound, in turning the fundus into the vagina. It was now easy to clamp the broad ligaments in forceps, divide them, and remove

the whole uterus. Three pairs of forceps were left on the right, and two pairs on the left broad ligament. The patient was put to bed in good condition. On section the uterus was found to be enlarged to double its normal size. The interior was hollowed out and the posterior wall nearly destroyed by ulceration. The cervix was normal.

After-progress.—Twenty hours after the operation the clamp forceps were taken off the broad ligaments. There was a trifling oozing, which ceased spontaneously in a few minutes. Recovery was uneventful, though the vaginal discharge was horribly offensive for some days. Ten days after the operation she left her bed, and in the third week returned home well.

Case 3. Patient of Dr. Oliver and Dr. Anderson.—Mrs. R., æt. 53, mother of eight children.

History.—A profuse yellow discharge appeared nine months ago which, four months afterwards, became blood-tinged at times. Three months ago a discharge of pure blood commenced, and has continued more or less freely up to the present time. The patient has never been well since the birth of her first child, thirty-two years ago, for she has always been troubled with a "bearing-down." She has lost flesh lately. Menstruation ceased permanently six years ago. Family history good.

Present condition, November 24th, 1892.—The patient is a sallow, dejected-looking, anæmic woman. All viscera sound.

P. V.—The tip of the cervix is flattened and enlarged, and occupied by a hard ragged ulcer, which bleeds readily on examination. The vagina, broad ligaments, and bladder appear to be healthy. The uterus is of normal size, and is freely movable.

Operation, November 24th, 1892.—The whole uterus was extirpated per vaginam. The lower part of the right broad ligament was secured by a silk ligature, and the remainder clamped in large forceps; the left broad ligament was secured by three pairs of forceps before division.

After-progress—Twenty-seven hours after the operation the clamp forceps were removed. There was no bleeding. The

vaginal discharge was foetid during the first two weeks, though the patient made a good recovery, and went home well in the third week.

Case 4. Patient of Dr. Slater, Newcastle.—Mrs. A. P., æt. 34, mother of four children.

History.—For three weeks she had noticed a yellow discharge mixed with blood, more profuse sometimes than others, but getting steadily worse. Bleeding always followed coitus or straining during defæcation. She has had no pain. Dr. Slater diagnosed cancer of the cervix, and a week ago I saw the patient with him. We found a soft, large, velvety ulcer on the tip of the enlarged cervix, which bled freely on being touched. I removed a portion for microscopical examination, and finding it to be a typical example of tubular epithelioma, agreed with Dr. Slater in recommending an operation. The patient has been subject to attacks of tonsillitis, but otherwise has had good health. Her mother died of cancer of the womb.

Present condition, February 18th, 1893.—The patient is a sallow-complexioned but healthy-looking and stout woman. All viscera sound.

P. V.—A large cauliflower growth, with a circumference the size of a five-shilling piece, is felt springing from the cervix. The growth is very soft and friable, bleeding profusely when touched. Vagina, broad ligaments, and body of uterus normal.

Operation, February 23rd, 1893.—Entire uterus removed.

P. V.—Broad ligaments clamped with two pairs of forceps on left side and three pairs on right. About three ounces of blood was lost.

After-progress.—Twenty-eight hours after the operation the forceps were taken off. There was no bleeding. Recovery was uneventful, and the patient went home well on March 11th.

Case 5. Patient of Dr. Binnie, Brandon.—A. O., æt. 42, mother of four children

History.—For the last year has been troubled with “her womb coming down occasionally.” Six weeks ago bleeding began, and has continued steadily since. Four weeks ago the

discharge was noticed to smell badly. She has had no pain. The patient has had no bad illness, but has frequently suffered from nervousness and palpitation. Her family history is unimportant.

Present condition, April 10th, 1893.—A stout florid-complexioned woman, slightly anæmic. Viscera sound.

P. V.—Cervix large. Projecting from its end a rounded ulcerated soft swelling, the size of a Tangerine orange, is felt and seen. From the inside of the cervix a similar finger-shaped process projects into the vagina. The growths bleed readily. Disease is limited to the cervix. The discharge has the foetor typical of malignant disease.

Operation, April 12th, 1893.—The entire uterus was extirpated per vaginam. The broad ligaments were clamped with three pairs of forceps on each side.

After-progress.—April 13th, at 5 p m. (twenty-five hours after operation) the forceps were taken off. Profuse hæmorrhage commenced at once. As I had just completed an abdominal section in the adjoining room, the chloroformist, an assistant, nurse, instruments, and all necessities were fortunately at hand. Chloroform was immediately administered, and the patient placed in the lithotomy posture. In a few minutes she had lost over a pint of blood. Introducing my hand into the vagina I felt a warm stream of blood pumping from a large vessel on the left side. This was soon arrested by re-applying the clamp forceps to the portion of tissues in which the vessel was felt. The blood was then removed from the pelvic cavity by sponging and douching. From the position of the vessel I think it was a large branch of the left ovarian artery, which had failed to become occluded by twenty-five hours of forcipression.

April 16th.—Clamp forceps finally removed. May 3rd.—Patient went home well. Her after-progress was not so straightforward as in the other cases, for on one occasion (the evening of April 14th) her temperature was 102.6, and for some weeks she was very anæmic.

Case 6. Patient of Dr. Greenhough, Heaton.—Mrs. F. M., æt. 32, mother of one child 14 years old.

History.—A year ago she first noticed a yellow discharge, with hæmorrhage. The bleeding has recurred at irregular intervals since, and at her menstrual periods has been very profuse. The patient has always been a delicate woman, much troubled with headaches and indigestion, but has had no serious illness. Her family history is bad, for her father and mother were both delicate, and relatives consumptive.

Present condition, June 5th, 1893.—The patient is a pale-complexioned, small-made, and fragile-looking woman, though free from disease except in the pelvis.

P. V.—The cervix is broad, short, and indurated. The tip of it is excavated by a nodular hard-based ulcer with sharp hard edges. The vagina is small and inelastic, but free from disease. The broad ligaments appear to be healthy. Posteriorly, and to the left of the cervix, a rounded smooth body can be felt which, from its connection with and relation to the cervix, is believed to be the retroflected fundus of the uterus. Connected with this is another rounded, elastic, tender swelling which, from its position and relations, is thought to be an enlarged and cystic ovary. Hæmorrhage followed the examination.

Operation, June 7th, 1893.—The abdomen was opened in the middle line, and the diagnosis of retroflected uterus and enlarged cystic ovary confirmed. The fundus was then drawn up and held forwards with the ovaries and tubes. A chain ligature was next applied to each broad ligament on its pelvic side, and the broad ligament was divided between the ligatures and clamp forceps on the uterine side right down to the floor of the pelvis. The peritoneum was now divided over the front and back of the cervix close to the uterus, and an elastic ligature was passed round the bared cervix and tied. The body of the uterus, the ovaries and tubes, and the greater part of the broad ligaments were then removed by dividing the uterus above the elastic ligature. The stump and opened canal were now covered up with iodoform gauze held in position by sutures.

The pelvic cavity and abdominal opening were then packed with sponges to keep the intestines out of the way, and the opening covered with an antiseptic towel. The patient was now placed in the lithotomy posture, and the cervix with the elastic ligatures and iodoform gauze removed, per vaginam, by making a circular incision through the mucous membrane of the vagina, clamping and dividing the small remaining portion of the broad ligament containing the uterine arteries. A strip of iodoform gauze was left in the vagina with the two pairs of forceps on the broad ligaments. The operation was completed by removing the sponges from the abdominal and pelvic cavities and suturing the abdominal wound. The operation occupied one hour.

After-progress.—June 9th (forty-eight hours after operation.) The forceps were removed, but the iodoform gauze left.

June 12th.—Iodoform gauze taken away.

June 16th (a week after operation.)—A sharp attack of vaginal hæmorrhage, which had to be arrested by plugging. As there had been no trouble of any sort since the operation, and no discharge for the last few days, it was difficult to account for this. We learned, however, and this may have a bearing upon it, that at this time menstruation should normally have commenced. Except for this, recovery was uneventful.

June 21st.—The sutures were taken out of the abdominal wound, which is all healed.

June 22nd.—Went home well.

Case 7. Patient of Dr. Harrison, North Shields.—Mrs. B., æt. 50, mother of ten children and two miscarriages, eldest 32, youngest 7.

History.—For the last two years she has “not felt up to the mark,” and was easily fatigued. Since Christmas 1893 (two-and-a-half months ago) felt a sensation as if her womb was coming down, and has had a profuse foetid leucorrhœal discharge. Family history unimportant.

Present condition.—Patient is a stout florid woman, with acne rosacea on face. She looks like an alcoholic. All the viscera

are sound; though she complains of frequent micturition there is nothing in the urine and no other bladder symptoms.

P. V.—Os a transverse slit, very hard. On anterior lip a hard nodular erosion is seen and felt, no ectropion. Fornices and broad ligaments normal.

Operation, March 15th, 1894.—Whole uterus extirpated Fundus had to be anteverted, because broad ligaments were inelastic and would not yield. The broad ligaments were each clamped with three pairs of forceps.

After-progress.—March 17th, forceps removed. March 19th, iodoform gauze taken away. Progress straightforward. Went home well March 31st, 1894.

Case 8. Patient of Dr. Oliver and Dr. Ellis, of Bishop's Auckland.—Mrs. H., æt. 37 years, twice married, one child, 12 years of age, to first husband; two children, 6 and 4, to second husband.

History.—Bleeding commenced seven months ago after a ride on a switchback, and has continued less or more ever since. It also is increased by straining at stool or by sexual intercourse. The blood has at times been mixed with matter which had a foul smell. There has been of late some irritation of the bladder, which has made her get up at nights. No pain has ever been felt. She has always been healthy and strong. Has had psoriasis since twelve years of age. Her family are long-lived and healthy.

Present condition, April 2nd, 1894 —A florid, fair-complexioned, fair-haired woman; looks younger than she is, and appears to be in good health. All her organs are sound with exception of uterus.

P. V.—Cervix soft and enlarged; bleeds readily when touched. A mushroom-like ulcerating growth, sloughy and bleeding, is seen occupying the position of the cervix. In front the ulceration extends on to the vaginal m. m. underlying the bladder.

Operation, April 28th, 1894.—The bladder being first defined, the involved vaginal m. m. was dissected off it, and the entire

uterus then extirpated. After division of the lower part of the broad ligaments, the fundus was retroverted and the remainder of the broad ligaments clamped and divided from above, because the ligaments were rigid, and would not allow the uterus to descend directly. Three clamp forceps were used for each broad ligament.

After-progress.—The first night one-third of a grain of morphia was given hypodermically for the pain. April 30th, 4 p.m. (fifty-one hours after operation), forceps removed. May 1st, iodoform gauze withdrawn. May 11th, patient went home well.

Case 9. Patient of Dr. Whitehouse.—Mrs. C., aged 32 years, mother of six children.

History.—Two months ago she first noticed an offensive discharge. Her last baby was 15 months old and unweaned then. She weaned it at once. The discharge continued to increase and became blood-stained. A week before operation she had a severe hæmorrhage, which commenced during the night, after coitus, and in the morning she sent for Dr. Whitehouse. It ceased then in great part, but has continued slightly since.

Previous health.—Always strong and healthy.

Family history.—No disease in family. Relations all healthy and long-lived.

Present condition.—May 19th, 1894. A healthy-looking woman with florid complexion, dark hair, and grey eyes. All viscera sound.

P. V.—Cervix feels enlarged by a growth, soft and granular. Os patulous. Bleeds on slightest touch. Disease apparently limited to cervix.

Operation, May 22nd, 1894, at patient's own home. Both ovaries and tubes and entire uterus removed P. V.

On exposing parts fully, a nodule of growth about the size of a walnut was found infiltrating the base of the right broad ligament. The uterus was first separated on the left side by clamping and dividing the left broad ligament, then the fundus

and both ovaries and tubes were anteverted and tilted down and the right broad ligament clamped in small pieces and carefully divided from above, thus leaving the nodule in the lower part to be dealt with last. The broad ligament beyond the growth was then secured by forceps and divided, allowing the uterus and both ovaries and tubes to be removed in one mass. Ten forceps in all were left hanging in the vagina, with a strand of iodoform gauze passing through the centre of them into the peritoneal cavity.

After-progress.—May 24, forceps all taken away. No hæmorrhage. P. 65, T. 99·6°; locks well.

May 25th. In the afternoon of to-day the temperature began to rise; at 12 o'clock it was 102°; at 4, 103·8°; at 7.30, 104·2°. The iodoform gauze was now removed and a douche of iodine water used. 9.30 p.m., T. 103·8°; 11.30 p.m., douche; 12 p.m., T. 102°, P. 95; 2 a.m., T. 101°, P. 85, douche; 4 a.m., T. 99·8°, P. 92; 6.30 a.m., T. 98°, P. 90, douche. From this date the case caused no further anxiety though she passed through an illness resulting from septic absorption before completing recovery.

In every case the clinical diagnosis of cancer was verified by microscopic examination.

Remarks.—The one striking fact in the history of every case, but Case 8, is that *hæmorrhage was the first symptom to attract attention*. Too much importance can scarcely be attached to this; for I have had abundant evidence to satisfy me that *there is no pain in cases of cancer of the cervix till the case is beyond hope of cure by a radical operation*. The cervix is insensitive, and pain only appears when peritoneum or bladder or other sensitive parts in the neighbourhood have become involved, when it is too late to do a radical operation with fair chances of success. Metrorrhagia is especially alarming in women past the menopause, for in the great majority of instances it means uterine cancer. The diagnosis should be at once made complete by examination, for it can only be confirmed by physical signs aided, in doubtful cases, by the use of the microscope.

Statistics, if they have done nothing more for this subject, have settled that the prognosis, after early and free removal by operation of the cancerous cervix, is good; for a large percentage of patients submitted to a radical operation remain permanently well. Hence the importance of an early diagnosis.

The choice between a partial and complete removal of the uterus, when the growth appears to be limited to the cervix, cannot yet be settled on the ground of experience. Each operation has powerful advocates with convincing statistics. As soon as it can be shewn that total extirpation has a mortality not larger or very little above that of supra-vaginal amputation of the cervix, the partial operation will be abandoned. My preference for the radical operation is indicated by the notes, and the conditions I regard as constituting suitable cases for it are made sufficiently apparent. All the cases in which I have extirpated the entire uterus for cancer are in this paper reported.

In the first five cases, and the seventh, eighth, and ninth, the uterus was extirpated through the vagina. In one case (the sixth) the fundus of the uterus, the tubes and ovaries, and a large part of the broad ligament, were removed by the abdomen, and the cervix by the vagina. This latter is the operation I would prefer to perform when, for any reason, the uterus cannot be drawn down so that the cervix is visible at the vulva. The brilliant recorded success of vaginal hysterectomy makes criticism difficult, and possibly dangerous; but an operation performed largely in the dark, and requiring sometimes an amount of force which, under any other circumstances, would be considered unsurgical, does not commend itself to me. The excellent recovery made by Case 6, supports my belief that such an operation as was performed on that patient need be no more dangerous than vaginal hysterectomy, and it has the important advantages of—

1. Allowing of a more thorough examination of the condition of the broad ligaments, and of the lumbar and pelvic glands, before resorting to total extirpation of the uterus, than is possible from the vagina.

2. Performing a difficult operation with parts fully exposed and in a good light—perhaps the most important aid to a successful result in surgery.

3. Increasing the chances against peritoneal sepsis—the greatest risk of the operation.

The following are the details of the operation that I now perform, one which can be done in a few minutes, and is remarkably simple in favourable cases; but one which, in other cases, as I have said, is tedious, difficult, and so rough as to be unsurgical.

The patient, well wrapped up and laid on a table, surrounded by hot bottles to avoid shock—which, however, is seldom severe,—is anaesthetised and tied up in the lithotomy posture.

1. The vagina, vulva, and surrounding parts are thoroughly scrubbed with soft soap and hot water, then douched with 1–20 carbolic lotion, followed by 1–60 carbolic lotion. The vulvar orifice is surrounded by towels wrung out of a strong antiseptic.

2. The cervix is gripped by volsella and drawn down; an examination made of the broad ligaments through the vagina and rectum, and the position of the bladder ascertained.

3. Any ulcerated fungating or sloughing surface is thoroughly scraped with a sharp spoon, and the whole area again thoroughly cleansed with abundant carbolic douching.

4. Having fixed the cervix firmly in good forceps, a circular incision is made with a knife completely round it through the whole depth of the vaginal mucous membrane, and, if possible, half an inch from the diseased surface, taking special care to avoid the bladder in front, where the incision must reach fairly down to the uterine tissue.

5. The vaginal cut edges are picked up in hæmostatic forceps; two, right and left anterior, and two, right and left posterior; four in all.

6. The two anterior forceps are entrusted to one assistant, and the volsella fixing the cervix to another assistant, whilst the operator working close to the uterus separates its anterior surface by finger and scissors, until the peritoneum is reached. This may be opened by scissors, after being caught and held by

clip forceps; or with sinus forceps, pushing them through *closed*, and withdrawing them opened, when, in either case, the hole is enlarged by tearing its sides apart with the fingers. The posterior surface of the uterus is similarly dealt with, when that organ will be held by the broad ligaments only.

7. The broad ligaments being now well defined, are seized at their lower part by strong forceps within half an inch from the uterus, and divided with scissors on the uterine side. When the lower portion is so divided, the uterus is drawn down and a further portion of the broad ligament on each side is secured in forceps and divided. By a continuation of the process, the top of the broad ligament is reached and the now detached uterus removed.

8. The operation is completed by removing the clips attached to the vaginal mucous membrane, sponging and carefully examining the cut edges for any bleeding points, and the introduction of a thick strip of iodoform gauze through the centre of the forceps, the upper end of the gauze reaching into the peritoneal cavity, the lower end being cut short at the vulva. During the whole operation the parts are frequently douched with carbolic lotion, and when all is finished, the projecting handles of the forceps and the vulva are covered with a dressing of corrosive wool.

After-treatment.—The bladder is emptied by catheter every eight hours until the forceps are removed. The forceps must not be taken away earlier than forty-eight hours after the operation, for my experience in Case 5 shews that it is unsafe to do so. The cases in which this was done sooner without mishap do not encourage me to run the alarming risk of hæmorrhage. The iodoform gauze is not touched for seventy-two hours, when it may be withdrawn and dispensed with. Bathing of the external parts with an antiseptic lotion, and dressing with an antiseptic pad, are now likely to meet all requirements. From the sixth to the eighth day the bowels are to be moved with an enema. In most clamp cases a foetid vaginal discharge is noticeable in a few days, which, unless the temperature rises,

may be disregarded. If, however, there be any rise of temperature, careful douching with iodine lotion is my favourite prescription. It is rare, so far as I have seen, to have this foetid discharge when the broad ligaments have been secured by ligatures.

All the cases except one were operated on in my private hospital. The exceptional one was done in the Royal Infirmary, Newcastle-on-Tyne. Two of the patients may be said to owe their lives to the fact that, at the time they began to bleed they were in a properly equipped institution. The best surgical results are only to be obtained when operations can be conducted with the same care as laboratory experiments are ; and the makeshift arrangements of a private house, even of the better class, cannot be relied on to supply all the requirements of present-day surgery.

REPORT OF THE CONDITION OF THE FIRST SIX CASES
IN DECEMBER, 1893.

Of the six cases, two (Case 1 and Case 4), are dead of recurrent cancer. All the rest are well. In Case 1 the bladder was evidently involved at the time of the operation, but as there were no physical signs found to corroborate what the symptoms suggested, the operation was performed. In Case 4, the youth of the patient and the microscopical character of the growth both made the prognosis exceptionally unfavourable, though it was hoped, from the early stage at which the growth was attacked, and its apparently complete removal, that the result would be good.

Dr. Russell writes of Case 1 :—" If I remember rightly, the patient lived about fourteen months after the operation." She was free from symptoms for nearly a year.

Of Case 2 :—" On examining her about a month ago I could find no evidence of disease in the cicatrix. She has no symptoms pointing to the disease returning, and her general condition is good."

Dr. Anderson writes of Case 3 :—" I examined Mrs. R. to-day,

and also made a P.V. I found her general condition good, and there is practically no cicatrix to feel. I consider her perfectly satisfactory, and cured."

Dr. Slater writes of Case 4 :—"The first symptoms of recurrence of cancer in Mrs. P. appeared in the cicatrix of vaginal roof about two months after operation. It seemed to extend up the colon, implicating the ureter and kidney—right side. She succumbed Nov. 4th, 1893, owing to uræmia and exhaustion."

Dr. Binnie writes of Case 5 :—"I have seen Mrs. A. O., and am glad to report most favourably of her present condition. Since the operation she has gained weight; has had no pain or discharge. There is no sign of recurrence of the disease."

Dr. Greenhough writes of Case 6 :—"I saw Mrs. M. yesterday, Dec. 9th, 1893. General appearance improved. Body better nourished. No pain; feels well. No bulging of abdominal scar. No sign of recurrence of disease."

The last three cases have been so recently operated upon as to make a report of their present condition valueless.

A MODIFIED METHOD OF EXAMINING THE CADAVERIC HEART.

BY O. J. KAUFFMANN, M.D.

THE method usually employed to open the heart in the *post mortem* room has certain disadvantages—viz., that the shape of the organ is destroyed at a comparatively early stage of the examination, and, more important than this, that clots, the disposition of which it is frequently of importance to note, are apt to be removed before an opportunity has arisen for examining their exact position. In addition to this, the mitral valve is generally cut across without a chance of examining it in its entirety, except by inspection from the auricle.

In view of these disadvantages, I wish shortly to record the procedure which I have been led to adopt at this stage of an autopsy, as presenting, I believe, some advantages over the method commonly followed.

After opening the pericardium it is advisable to make short incisions into the pulmonary artery and into the aorta, in the long axis of each vessel, and to notice whether any solid clot occupies one or the other, or whether fluid blood escapes in notable quantity. Thereupon an incision should be made into each ventricle close to and parallel with the septum ventriculorum. These incisions are best made over the lower half of the cavities, and should be carried to the apex of each ventricle. Fluid blood escaping may be noted, and it is for this purpose that incision of the ventricles at this early stage is advisable; but no clot should be pulled out, since, if this be done, it is impossible to learn the exact position which such clot occupied in the heart. The organ is now removed by cutting in the usual manner, but care should be taken to grasp it by the apex and to avoid pressure upon the auricles. At the moment of severing the venæ cavæ and pulmonary veins it is easy to observe and, if necessary measure the liquid blood and soft *post mortem* clot issuing from each auricle; any *ante mortem* thrombus present will, if care be taken to avoid pressure on these cavities, be left in position.

The heart being now removed from the body, the usual incisions into the auricles are made and their remaining contents examined, after which the auriculo-ventricular valves may be inspected from above and measured in the usual manner. Then the ventricles are opened by prolonging the previous incisions upwards, first into the pulmonary artery and next into the aorta, when the semilunar valves and the regions of the ventricles beneath them, with their contents, are clearly exposed for inspection. In addition, the auriculo-ventricular cusps are exposed from below, the state of their orifices can easily be made out, and, according to the requirements of each case, the auriculo-ventricular fibrous ring attaching the cusps may be cut across on each side in the direction and manner best calculated to expose any disease of these parts and to favour their preservation in a museum.

By following this method, I have found that the disadvan-

tages before remarked are overcome, and that the clear exposure of the auriculo-ventricular valves from below thus gained is of great advantage; nor does this process interfere in any way with any further examination of the organ which may be requisite, nor with the water-tests of the arterial orifices, which may be carried out before prolonging the original incisions into the ventricles through the semilunar valves.

REPORTS OF CASES.

A CASE OF ANTHRAX.

BY L. P. GAMGEE, F.R.C.S.
RESIDENT SURGICAL OFFICER, GENERAL HOSPITAL.

A. B, aged 18, a butcher at Claverdon, was admitted into the General Hospital on April 7th, 1894.

The history he gave was that on March 30th he killed and dressed two sheep which had just come from a farm near Henley. So far as he could see, both sheep were perfectly healthy, and there were then no cases of disease among the other animals on this particular farm. On the morning of April 1st the patient noticed a small and rather irritable pimple on his left cheek about an inch and a half from the mouth. This he accidentally cut off with his razor while shaving. As yet he felt perfectly well, and there was no swelling of the cheek and only a very small area of redness round the pimple; but on April 2nd there was swelling around, and on the 3rd there was a red, painful, and elevated patch, the size, as he put it, of a thimble. This gradually increased in size; and on April 6th there was redness and swelling all over the left cheek, and extending down on to the neck. Constitutional disturbance was still very slight, the patient feeling perfectly fit to do his work.

On admission, the patient's temperature was 103.4; he was

able to get about—in fact, had walked about a mile to the hospital—and complained merely of local pain and some headache. On the left cheek was a black gangrenous patch about the size of a shilling, surrounded by a ring of vesicles. In the neighbourhood of this the skin was indurated, and the cheek, eyelids, and left side of the neck were red and œdematous. The appearance of the eschar, vesicles, and surrounding induration was clearly that of a malignant pustule.

Under an anæsthetic the whole indurated area, including skin, subcutaneous tissue, and part of the muscle was cut away, and the resulting wound was freely rubbed with strong nitric acid, and dressed with a carbolic poultice. An enlarged sub-maxillary lymphatic gland was not interfered with.

Next morning the patient expressed himself as feeling much better; his temperature was 99·4; the œdema of his eyelids had disappeared; and the swelling of his cheek and neck was very much less. In two days' time all the swelling had gone down, and the temperature was normal. From this time the patient made an uninterrupted recovery; the slough produced by the acid rapidly cleared away; and he was discharged on May 3rd with a granulating wound the size of a two-shilling piece.

Dr. Stanley, the Pathologist to the General Hospital, found anthrax bacilli in the indurated tissue removed, but could find none in the contents of the vesicles.

Remarks.—In this district cases of anthrax occurring in human beings are very rare; but in some parts of London, where workmen have to handle foreign hides, they are by no means uncommon, there having been seventeen cases at Guy's Hospital during ten years. In the case I have described there are two main points to be noted—namely, the slow progress of the disease and the small amount of constitutional disturbance. As a rule, at the end of forty-eight hours or so pyrexia sets in, with delirium and prostration, and, unless treatment be adopted, death generally ensues about the sixth or eighth day; but here, on the ninth day the patient walked into the hospital after a

journey of some eighteen miles. The treatment by free excision is generally successful, about 85 per cent. recovering.

I am indebted to Mr. Chavasse for permission to publish this case.

COMPULSORY NOTIFICATION IN ENGLAND AND FRANCE.

THE series of three "Essays in State Medicine" by Mr. Ernest Hart, which have been recently reprinted from the *British Medical Journal*, contains a most able and instructive report on the working of the system of compulsory notification of infectious diseases from the time of its adoption, in 1889, up to the end of March 1892. It is certainly a matter for hearty congratulation that this system, although its adoption is purely voluntary, is now in full operation among "upwards of 25 of the 29 millions of people enumerated at the last census;" and not less satisfactory is it to note the absence on the part of the various Medical Officers of Health consulted, of "any hint, much less assertion, of dissent from the wisdom of the Statute." A few points, however, in which alteration seems possible or desirable, stand out with some prominence, whilst one or two respects in which the provisions of the Act have to some extent failed are worthy of consideration and attention on the part of the profession in this country.

First and of most importance is the fact that, although as already stated the system of compulsory notification is in force amongst rather more than five-sixths of the population of England and Wales, there is still a minority of nearly one-sixth, including four million persons, who are excluded from the advantages of its operation. Whether this is due to an ill-judged economy or to other prejudices, the time has surely now come when the application of the Act should be enforced by law throughout the country, and an avoidable source of danger to the community thus removed. At the same time, it is suggested that the notification of *all* the diseases mentioned in the Act of

1889—at present a matter of local option—should be made compulsory in every district.

As to whether this list of diseases should be extended by the admission of measles and whooping cough, and curtailed by the exclusion of erysipelas, some rather conflicting evidence is quoted. With regard to measles and whooping cough, it appears that the compulsory notification of the former has been voluntarily adopted in 72 sanitary districts, and of the latter in 17. In five cases, however, the notification of measles has since been again abandoned, and a similar measure is in contemplation in others of the aforesaid districts. The opinion is expressed by several Medical Officers of Health that the cost of this proceeding is out of proportion to the good to be obtained, an opinion which we hardly understand, considering the large annual death-rate from measles in children; and we note with satisfaction that the Parliamentary Bills Committee of the British Medical Association has expressed an opinion in favour of its experimental notification for a period of five or even ten years. The continuance of notification of erysipelas is on the whole supported by Mr. Hart; we doubt, however, whether the general feeling of medical men would not be found to be in favour of its abolition as comparatively unnecessary.

Instances of failure in the working of the Act are mainly confined to three diseases—namely, scarlet fever, diphtheria, and puerperal fever, in all of which the fact of concealment to a material extent appears to be recognised, especially in rural districts. With regard to diphtheria and membranous croup, not only is it certain that a large number of cases pass without notification (as shewn by the enormously high rate of mortality obtained by comparing the number of certified deaths with the total number of cases notified), but a very considerable confusion between the two diseases is seen not unnaturally to exist. That this is so is evident from the fact that in no less than seven counties and two registration divisions the mortality of membranous croup comes out at a figure considerably over 100 per cent, of the total number of cases notified. With regard

to puerperal fever, the very serious charge is made of deliberate concealment of cases to a large extent. This charge is based partly on the very small number of cases notified, and partly on the enormously high proportion of deaths to notifications. The inference inevitably drawn is to the effect that the real nature of the disease is concealed by practitioners from the fear of losing attendance on other puerperal cases. Such a charge is certainly a serious one, if true.

In the face of the evidence above noted as to the smoothness and success which, on the whole, characterize the working of the Act in this country, it is somewhat interesting to note the storm which has been aroused in France by the adoption of a somewhat similar measure. In November, 1892, an Act was passed, after due consultation with the Academy of Medicine and other scientific bodies, by which compulsory notification came into force on December 1st, 1893. This delay of a year caused it to be received at the time with comparative equanimity, but from the moment when its provisions became operative up to the present time, great excitement and indignation have been manifested by no small section of the medical profession in France. Finally we note that at a meeting of the Medical Society of Paris held on May 1st, a series of objections were drawn up, and the support of all other societies agreeing with them solicited, in order that an active crusade against the Act in its present form might forthwith be commenced.

Briefly, the following are the chief provisions :—The list of notifiable diseases corresponds closely with our own, except that erysipelas is omitted, and varicella, ophthalmia neonatorum, and certain rare diseases included. Measles was originally a notifiable disease, but was struck out of the list at the last moment by the Academy of Medicine. We note that a special clause is inserted according to which puerperal fever is only to be notified in those cases in which the patient has no objection to the fact of her pregnancy being made known !

The notifications are to be made on forms much like those in use in England, with the exception that the signature of the

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notifying practitioner is not required. Since, however, the books of forms are all numbered, and note is taken of the destination of each, the source of the notification is none the less known to the authorities. This curious arrangement, it appears, has been adopted as a salve to the consciences of those practitioners who object to the betrayal, as they term it, of the "confidence" of their patients. The ruse is, we think, delightfully transparent. The notifications are to be sent to both the mayor and the *sous-préfet* of the town in which the case occurs, neither of whom is, as a rule, a member of the medical profession. We gather that no remuneration is allowed, this service being required of the profession in return for the so-called "privileges" accorded to its members. In what these privileges consist the authorities do not specifically state.

Those who object to the Act as it now stands largely recognise the wisdom of the principle of compulsory notification ; but many go so far as to maintain that the precautions to be taken in individual cases should be left entirely to the discretion of the medical man in attendance, the authorities confining themselves to the supervision of such matters as the food and water supply of the town, drainage, etc. Several specific objections, however, are asserted with much vigour.

In the first place, the strongest feeling exists against notifying the existence of infectious diseases to two non medical authorities, with whom it will rest to take and enforce the necessary precautions. In this way, it is argued, the skilled directions of the medical practitioner will be interfered with and superseded by others given by authorities who, not having the requisite technical knowledge, will fall back upon routine instructions. The absolute necessity, for the proper working of the Act, of a sanitary organization in each town under the control of a *Medical Officer of Health*, as in England, is strongly insisted on by the *Progrès Médical* ; and the fact that no such organization exists is thought to be fatal to the proposed system. For this objection we cannot but think there is much to be said ; but the suggestion which follows, that the two officers named will often

be influenced by personal and interested motives in carrying out the necessary measures, is one which scarcely commends itself to serious consideration.

The chief ground of objection, however, appears to lie in the dislike of divulging what, it is maintained, should be looked upon as professional secrets—a dislike which is evidently based upon the fear of offending lucrative patients. The *Progrès Médical* even insists that the responsibility of notification should rest not upon the doctor in attendance, but upon the head of the family concerned. Whether or no the difference of temperament in the people of the two countries may possibly affect the question we cannot say, but, at all events, the experience of the working of the system in England affords good reason for the belief that such an objection will not be found to possess any weight in actual practice.

Other minor points—such as the interference with the liberty of the subject in cases of compulsory removal, the list of diseases, etc.—come in for a fair share of adverse comment; but it is around the two points already noted that the fight in reality is taking place. If it results in the establishment of a proper sanitary organisation for each town and district, under the control of a suitably trained medical authority, the cause of sanitation in France will have taken a step in advance the importance of which cannot well be over-rated.

PERISCOPE.

DERMATOLOGY.

BY LESLIE PHILLIPS, M.D. BRUX.

A case of Infection by Staphylococcus Aureus.—Robin and Leredde (*Archives de médecine expérimentale et d'anatomie pathologique*, September, 1893) relate a case in a man aged 25 who had, eight days previously, scratched some pimples on the face. The skin near the labial commissure was œdematous and

cyanotic; eyelids closed and swollen, with œdema extending as far as the cornea; lips projecting, and violaceous in tint; the upper lip was thickened, indurated, and of elastic consistence, the induration extending in the cheek towards the ear and inferior maxillary region as far as the neck. In the centre of the focus on the cheek, close to the labial commissure, were found small vesico pustules grouped like herpes, from which a purulent serosity exuded on pressure. Right pleurisy, with broncho-pneumonia. Death in forty-eight hours after the appearance of the pulmonary lesions. The autopsy shewed abundant pleural effusion and broncho-pneumonia. Bacteriological examination of the serosity from the cheek and from the lungs shewed the presence of staphylococcus aureus. The *porte d'entrée* of the infection was ascribed to the vesicles of facial herpes.

Psoriasis.—Zahrtmann (*Hospitalstidende*, 23rd August, 1893) relates an observation supportive of the view of the contagiousness of psoriasis. A shoemaker—who had been under observation for other maladies in 1886 and again in 1890, and who was free from psoriasis—worked in the same room, in the early part of 1893, with another workman suffering from psoriasis, and shared his bed for seven weeks. At the end of the first three weeks typical psoriasis of the body appeared.

Lupus.—Tommasoli (*La Riforma Medica*, May 20th, 1893) has treated three cases of lupus by injecting dog's serum. The blood was taken from the femoral vein, and the serum collected after standing for two or three hours in a cooled vessel. The injections were made locally into or in the immediate neighbourhood of the lupus nodules, in many points of the lesions. The quantity used was from 2 to 6 cc. A local reaction was produced during the first day or two, consisting of swelling and itching without appreciable general reaction. The treatment led to a slight diminution of the lupoid nodules, but the total result was very slight.

Molluscum Contagiosum.—F. Jaja (*La Puglia medica*, March, 1893) employed in a case of molluscum contagiosum injections

of sublimate (1 per cent.) of which one or more drops were introduced into the base of the tumours by means of a syringe, the needle of which was inserted parallel to the surface of the skin. The bodies gradually atrophied and dried up without leaving scar.

Erythema Nodosum—Commenting on a case of erythema nodosum occurring in the course of a fatal case of purulent infection related by Brodier, Dr. G. Thibierge (*Annales de Dermatologie et de Syphiligraphie*, January, 1894) says: "Bacteriological investigations of the cutaneous lesions were not made. It is hence impossible to know if they were caused by a microbic thrombosis, as in the case of MM. Orrillard and Sabouraud, or if the cutaneous lesions were not rather due to streptococcic toxins—a theory which, until we are more fully informed, appears to us more applicable to the majority of cases described under the name of infectious erythema nodosum. We note, with the author, that accidents have followed an infectious sore throat just as happens so frequently in polymorphous erythemata."

Alopecia Areata.—Hallopeau (*Wiener Med. Presse*) suggests the use of oil of wintergreen in the treatment of alopecia areata. A mixture of equal parts of ether and oil of wintergreen may be used.

Eczema of the Auricle—Chatellier, of Paris, recommends iodol in auricular eczema. In the vesicular variety, affecting the pinna and retro-auricular furrow or meatus, the parts are bathed in 1-5000 sublimate solution, wiped dry with cotton, and dusted with iodol, which should be insufflated into meatus. A final dressing of antiseptic wool is made. In dry eczema of the same parts, an ointment composed of fifteen grains of iodol to one ounce of lanoline is used.

Tubercular Gummata of the hand following hypodermic injections. Dr. E. Legrain (*Annales de Derm. et de Syph.*, Feb., 1894).—A patient presented in the right palm two small tumours the size of a pea, which proved to be tubercular gummata supervening under the following circumstances. In April, 1893, the patient

was stung by a scorpion in the right palm. A hypodermic injection of several drops of solution of permanganate of potassium ($\frac{1}{2}$ per cent.) was hurriedly made without antecedent sterilisation of the needle. This needle had been used three hours previously to make several injections of iodoformed guaiacol between the shoulders of a man suspected of being tuberculous, and who later developed phthisis with bacilli in the sputa. The nodosities in the palm were discovered three months after, and gradually increased in volume. They were excised in December, and the wound cauterised with the thermo-cautery. Section of the nodules shewed their centre occupied by caseating material, and bacteriological examination revealed the presence of numerous bacilli tuberculosis. In the discussion which followed the relation of this case, Dr. Barthélemy related a case of tubercular inoculation following the ordinary operation of piercing the lobules of the ears for earrings.

Acne Necrotica.—Dr. Isaac presented to the Berlin Society of Dermatology (November, 1893) a patient who had suffered from this disease for a year. The parts affected were the lower extremities, and the disorder was accompanied by sharp fever, and ulcerations accompanied by inflammatory symptoms healing without treatment. Three attacks had occurred in the year. On the back and on the inferior extremities were seen a large number of small roundish and deep scars, furunculi, and small violaceous nodules pierced in the centre and free from active inflammation. Isaac excluded lichen planus and syphilis, and regarded the disease as an acne necrotica, the points of predilection of which were the same. The dry necrosis, the form, and the successive attacks seemed to justify this view.

URINARY AND RENAL DISEASES.

BY ROBERT SAUNDBY, M.D. EDIN., F.R.C.P. LOND.
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On the absence of sugar from normal human urine. G. S. Johnson (*Med. Chir. Trans.*, vol. 76, p. 151).—He concludes that human urine contains no sugar under normal conditions, basing this conclusion on the facts that the reducing agents other than sugar normally present can be isolated and removed from the urine. These are uric acid and kreatinin; and he believes that the reducing action of the latter is much greater than has been generally supposed. He also relies upon the phenyl-hydrazin test for sugar, which he says gives absolutely negative results with normal urine. The mode in which he performs the test is as described by C. Schwatz (*Pharm. Zeit.*, xxxiii., 465): the urine is precipitated completely with lead acetate and filtered, the filtrate mixed with a solution of phenyl-hydrazin and excess of KHO and boiled for a minute. If sugar is present, a yellow colour appears, followed by an orange precipitate on the addition of acetic acid. He says it will easily detect one-twentieth of a grain of glucose in a fluid ounce of urine, and is even capable of detecting one-hundredth of a grain per fluid ounce.

Sur la pathogénie du diabète. Rôle de la dépense et de la production de la glycose dans les déviations de la fonction glycémique. Chauveau and Kauffmann (*Bull. de l'Académie des Sciences*, 30th January, 1893. *Le Progrès Méd.*, 1893, vol. i., p. 121).—Glycosuria is caused by hyperglycæmia, of unknown origin. Chauveau and Kauffmann have found that venous blood contains always less sugar than arterial blood, and that this holds good in all conditions, even in the hyperglycæmia following extirpation of the pancreas.

Le pancréas et les centres nerveux régulateurs de la fonction glycémique. Expériences concourant à démontrer le rôle respectif

de chacun de ces agents dans la formation de la glycose par le foie. Séance, 13 Mars, 1893 (*Ibid*, p. 286).—The sugar-forming function of the liver is suppressed by such a division of the medulla as cuts it off from the sympathetic. Extirpation of the pancreas is not capable of producing glycosuria after this

In a subsequent communication (March 20th) they suggest that the pancreas causes diabetes by influencing the sugar-forming centres for the liver, weakening the controlling centre, and stimulating the exciting centre.

Diabète Salivaire. Luigi, Toralbo. Milan, 1891.—This is the case of a woman, aged 33, the daughter of a diabetic, nervous, dyspeptic, and affected with sialorrhœa. The saliva rendered in twenty-four hours amounted to half a litre, and contained twelve grammes of sugar to the litre. There was no sugar in the urine. The examination of the saliva is stated to have been made with due precautions as to food, etc. The secretion of saliva was increased by the introduction into the mouth of sapid sweet substances, by emotions, and at the menstrual periods.

Beitrag zur Kenntniss der Beziehungen der Erkrankung des Pancreas und seiner Gefässe zum Diabetes mellitus.—Hoppe-Seyler, H. (*Deutsches Arch. f. klin. Med.*, Bd. 52, Heft 1 and 2, p. 171).—This paper relates a case of pancreatic diabetes, and contains a summary of the history and literature of the subject.

Diabetes mellitus after extirpation of the pancreas.—Minkowski, O. (*Archiv für Exp. Path.*, vol. xxxi., p. 85).—Extirpation of the pancreas causes invariably severe diabetes in cats and dogs; the disease supervenes within twelve hours, and as a rule the animals die in a few days. The sugar persists in the urine even after starvation for seven days, but as marasmus sets in, it diminishes in amount and may disappear altogether just before death.

If a fourth or fifth part of the pancreas remain diabetes will not always result.

After extirpation a piece of gland was grafted under the skin of the abdomen, and on animal diet the diabetes disappeared.

In partial extirpation the nerve plexus may be injured as much as in total extirpation, yet diabetes may not follow.

Phloridzin administered to animals suffering from pancreatic diabetes causes an increase of sugar.

Removal of the salivary glands causes only transitory glycosuria.

Removal of the duodenum causes only slight glycosuria and involves injury to the pancreas.

Extirpation of the thyroid gland does not cause glycosuria.

Extirpation of the kidneys does not increase the sugar in the blood in cases of phloridzin diabetes.

Glucose is practically the only carbo-hydrate that appears in the urine.

Lævulose, if taken in small doses, appears in the urine of diabetic animals in very small quantities only.

Inulin causes a marked increase of glucose. Large quantities of lævulose appear in the urine as glucose.

Cane sugar appears as glucose.

Milk sugar leads to increase of glucose.

Glycogen disappears rapidly from the livers of animals after pancreas extirpation.

After extirpation of the pancreas there is greatly diminished absorption of albumens and fats.

The leucocytes of the blood and pus after pancreas extirpation contain more glycogen than normal.

Jambul is absolutely useless in diabetes after pancreas extirpation.

Syphilis in its relation to Diabetes. Fisher, E. D. (*The Journal of Nervous and Mental Diseases*, July, 1892).—Fisher relates three cases of syphilis followed by diabetic symptoms which disappeared under anti-syphilitic treatment.

Le diabète à évolution lente. Acad. de Méd. Worms (Séance du 5 Décembre, 1893. *Le Progrès Méd.*, 1893, vol. ii., p. 440).—He has seen cases of diabetes which last ten, fifteen, or twenty years. The amount of sugar may be considerable, as much as four per cent., but it is amenable, and even disappears entirely under suitable treatment, or if it persists in part, the general

health may be very good. In some instances it is intermittent; under the influence of an emotion, for example, the patient may pass fifty or sixty grammes of sugar and then remain for months free, in spite of ordinary diet. He recommends sulphate of quinine, cold affusions to the head, and mixed diet. He allows small definite amounts of ordinary bread in preference to gluten bread.

With reference to the frequency of diabetes, he examined 600 specimens of urine from workpeople and small employés with a negative result; but out of 100 from persons in a superior social position he found seven examples of sugar in people who had no suspicion of their condition.

Morbid changes in the sympathetic system in Diabetes Melitus. Cavazzani (*Centrbltt. f. allgem. Path.*, July 1st, 1893).—In a case of diabetes where the pancreas was quite healthy to the naked eye and microscope, the cœliac plexus was atrophied. The ganglia shewed atrophy, pigmentation, and necrosis of nerve cells, with increase of connective tissue and nuclei. The nerve fibres were atrophied. The cervical and thoracic sympathetic ganglia were congested and vascular, with interstitial hæmorrhages, atrophy of nerve cells, and increase of connective tissue. The thyroid was enlarged, and the adrenals shewed congestion with degeneration of their parenchyma.

Pityriasis Rubra in a case of Diabetes. Horden, Herbert H. (*The Lancet*, 1893, vol ii., p. 1,056).—The patient, a woman aged 70, complained of great irritation and burning of the lower part of her body; and on inspection, this was seen to be red and dry, with an innumerable quantity of thin papery scales, which were very easily detached. The urine, which measured nine pints in twenty-four hours, contained eight grains of sugar to the ounce. The rash subsequently spread all over the body. She was treated by anti-diabetic diet with codeine in pills, and a liniment of calamine, oxide of zinc, and olive oil applied locally. On this treatment the sugar entirely disappeared, but the irritation of the skin remained until it was relieved by a mixture containing quinine and gelsemium!

Psychical Disturbances in Diabetes. Jerzykowski (*The Lancet*, 1893, vol. ii., p. 824. Norving Lekarski, 1893, Heft 7).—Jerzykowski has related several cases of mental disturbance occurring in the course of diabetes in persons free from hereditary tendency to insanity. He regards alterations of the intellectual powers, of the special senses, and of memory as specially associated with the disease, of which he regards these as true complications. Melancholia, which occurs sometimes, is relatively rare.

Ueber das Vorkommen transitorischer Glycosurie nach apoplectischem Insult.—Schütz (*Prager med. Wochenschr.*, 1892, No. 50). Loeb, *Glycosurie bei Gehirnapoplexie.*—These communications have been evoked by the statement of von Jaksch, that in fifty cases of hemiplegia he had in no instance met with glycosuria. Schütz relates two cases and Loeb also two in which sugar was found in the urine, not only where there was reason to suspect a lesion in the neighbourhood of the fourth ventricle but in other parts. The general rarity of the occurrence is however admitted.

Die Bedeutung der Acetonurie für die Prognose des Diabetes.—Hirschfeld, F. (*Deutsch. med. Wochenschr.*, 1893, No. 38).—Hirschfeld has found that the administration of carbo-hydrates causes the diminution or disappearance of acetonuria in the less severe cases of diabetes, and he suggests that this occurrence may be utilised for purposes of prognosis. In other words, where acetonuria is present some carbo-hydrates should be added to the diet, and if this is followed by the disappearance of the acetone the prognosis is relatively favourable, if not, it is unfavourable.

Chronic Glycosuria in middle and advanced life. Duckworth, D. (*Brit. Med. Journal*, 1893, vol. ii., 773).—In this lengthy address the author draws attention to the difficulty of saying what is or is not diabetes, and asks whether chronic glycosuria without polyuria should be so called. He refers to the fact that though a gouty history is commonly present, all overt symptoms of gout pass away when glycosuria supervenes. The condition is frequently associated with obesity, and may at times be com-

plicated with albuminuria Rare in true rheumatism, it is common in chronic rheumatoid arthritis. These patients are very vulnerable and their wounds heal badly, tending to slough; cataract is rarely present; the aceto-acetic acid reaction is absent; the knee-jerk is present, and there is little tendency to coma. For this class of case he recommends that alcohol should not be curtailed, that alkalies and arsenic are suitable remedies, and that inland spas and mineral water cures are indicated. He also speaks well of a quiet country life, with absence of worry, fatigue, and exposure to the weather. He thinks cases distinctly associated with gout do best.

Gairdner, W. T. (*Ibid.*)—Following the introducer, Professor Gairdner related briefly the facts of a case of diabetes which was first noticed at the age of 30, but which lasted for over thirty years, the patient ultimately dying of coma. For the last year of his life he had partial gangrene of the foot, which had followed an attack of acute gout. The family history was free from overt gout.

Saundby, R.—The title includes cases of simple glycosuria and others of mild diabetes. The former do not need specific treatment by diet and opium, but should be watched, as in most instances they develop into diabetes.

Thomas, W. R. (*Ibid.*)—He related two cases of glycosuria entirely cured by the removal of causes of mental strain or worry. He also laid emphasis on the importance of exercise in the treatment of diabetes.

Drysdale, C. R. (*Ibid.*)—He did not believe glycosuria could be separated from diabetes any more than he believed that albuminuria could be separated from Bright's disease. He valued exercise and Dover's powder as treatment, and regarded drinking and high living and worry as causes of the disease.

Anderson, E. Garrett (*Ibid.*)—She thought almost all cases of chronic glycosuria developed into diabetes. She relied greatly upon exercise in the open air. Strict diet was as a rule ill-borne, and could not be maintained.

Skerritt, E. Markham (*Ibid.*)—He believed glycosuria and

diabetes could not be separated by a definite line; but cases occurred in which glycosuria developed the symptoms of diabetes, and others in which these symptoms disappeared and only glycosuria remained. Chronic glycosuria might last for as long as twenty years under special conditions, developing temporarily into diabetes—that is, being accompanied by polyuria and thirst, and then receding; and this long duration is compatible with mental and bodily vigour, though wounds do not heal by first intention. Dietetic restrictions are not indicated, nor is opium or codeine needed; in fact either does harm; but the cases require careful supervision.

Smith, Shingleton R. (*Ibid.*)—He regarded glycosuria as a result of digestive incapacity for amylaceous and saccharine food, generally caused by hepatic engorgement, and best treated by skim milk with alkaline and aperient mineral waters. He considered it a duty to get rid of the glycosuria by every possible means.

Redmond, C. S. (*Ibid.*)—He related a case of chronic glycosuria in a man aged 61, of full habit and robust appearance.

F. F. (*Ibid.*)—This gentleman referred to his own case. He was 34 years of age, and had been diabetic for about eighteen months as a consequence of mental overstrain in connection with the F.R.C.S. Eng. examination, which he had attempted while engaged in busy practice. He had a gouty nodule in a finger and a recurrent inflammation of the tendo Achillis. He was losing weight on the diet, but could take plenty of exercise.

Handford, H. (*Ibid.*)—He agreed that there were cases of glycosuria which could not fairly be called diabetes. He believed rigid diet could not be maintained beyond a few weeks, and the best intentioned patients deceived their physicians. He advised moderate restrictions.

Ord, W. M.—He agreed in distinguishing between glycosuria and diabetes, though in young persons for the most part they are identical, in elderly persons they are separable. He referred to a connection between glycosuria and angina pectoris. He spoke against too rigid restrictions in diet, and deprecated the view

that the amount of sugar in the urine is the only indication for treatment.

On the treatment of Diabetes Mellitus, especially of its more advanced forms.—Grube, Karl (*The Lancet*, 1893, vol. ii., p. 1613).—The author of this valuable paper says: "Most of what is known as to the treatment of diabetes is known by experience *in homine vivo*, and I may here point out the interesting fact that it has long been known from experience that in very advanced cases in which coma diabeticum is imminent, it is absolutely necessary to give chiefly food containing a large quantity of carbo-hydrates." He quotes Hirschfeld's recent paper to shew that the administration of carbo-hydrates will cause acetone to disappear from the urine. He relates several cases to illustrate the advantage of giving carbo-hydrates; he refers to the value of lævulose, of alkaline mineral waters, and of massage. He says, and this is the chief point of the paper, "in my opinion it is a great mistake to treat the patients too one-sidedly, and to think it the chief part of the treatment to exclude the taking of carbo-hydrates. The important point of the treatment is not to carefully avoid the carbo-hydrates, but rather to try to induce in the patient's system the faculty of again utilising them."

The Influence of Carbo-hydrates upon the Elimination of Nitrogen in Diabetes. Leo (*Zeitschrift für klin. Med.*, Bd. xxii., Heft 3, p. 225).—Leo has sought to determine whether in diabetes the administration of carbo-hydrates tends to the conservation of the albumen of the body as in health, and the result of his careful observations upon cases in which the urine and fæces were analysed shews that this action exists, though to a less degree than in health. This is another argument against the too stringent diabetic diet so often enforced.

Amputation for Diabetic Gangrene. Godlee, R. J. (*Med. Chir. Trans.*, vol. 76, p. 37)—Godlee believes that diabetic gangrene occurs from two causes—1, arterial degeneration, in which the vessels will be found affected at least as high as the knee, and in which amputation not lower than the knee may be

performed if the disease is progressing rapidly; and 2, peripheral neuritis, which is very slow, affects limited parts, causing perforating ulcer or destroying a single toe, where the case may be let alone, or if amputation be undertaken, it need not be at a great distance from the seat of the disease.

Glycosuria and Surgery. Smith, G. Bellingham, and Herbert E. Durham (*Guy's Hospital Reports*, vol. 49, p. 335).—This is a very valuable paper, which will long serve as the source of information upon this subject, as the authors have collected together a great amount of information and literary notes. They distinguish between cases in which the surgical lesion is the direct cause of the glycosuria and those in which the glycosuria precedes the surgical lesion, dividing the latter into those in which the lesion depends upon the glycosuric condition and those in which the two states are independent.

Glycosuria occurs, for examples of the first series, in septic conditions and after blows. Cases are related of glycosuria occurring in connection with abscesses, carbuncles, and erysipelas, with neoplasmata, especially epithelioma. Its relationship to blows is well known, but it is not generally recognised that glycosuria is an almost constant though transitory effect of injuries to the head and spine. These traumatic cases generally clear up within four or five months, but may last as long as two years; the later the onset the more grave the prognosis. The occurrence of glycosuria does not complicate the wound.

Respecting operations in diabetes the authors conclude that urgent operations should be performed in spite of the presence of diabetes, but it is admitted that even slight operations may precipitate a fatal result, and they recommend preparatory treatment. Circumcision in a diabetic is an operation fraught with danger. Older people stand more than the young in this respect. Cataract operations in the old do well, in the young badly. Diabetes delays the union of fractures. Gangrene in the lower limbs may be due to wounds, spontaneous inflammation, arterio-sclerosis, and nerve degeneration. Diabetic tissues inflame easily and die rapidly. Gangrene is more common as

age advances. Organisms which are always present in the skin have a pathogenic influence in diabetes. They think the balance of opinion based on experience is against the removal of mortified parts. They enjoin the use of the most scrupulous antiseptic care where operations are performed.

REPORTS OF SOCIETIES.

BRITISH MEDICAL ASSOCIATION. BIRMINGHAM AND MIDLAND COUNTIES BRANCH. PATHOLOGICAL AND CLINICAL SECTION.

Friday, April 27th, 1894, Mr. BENNETT MAY in the chair.

Vernal Catarrh.—Mr. Eales shewed a young man, aged 21, suffering from vernal catarrh, in which the "skimmed milk" appearance on the tarsal conjunctiva was well marked; the disease had persisted for four years.

Multiple Ocular Paralysis.—Mr. Eales also shewed a young woman, aged 20, who in March, 1893, became affected with paralysis of the right 6th nerve, and two months later with paralysis of the right facial nerve and deafness (the tick of the watch applied to the head being not perceived), and blindness of the right eye, no P. L.; the optic nerve after an interval of a few weeks shewing signs of primary atrophy. The paralysis of the 6th passed off, then the facial paralysis, but deafness and blindness persisted.

In February 1894 the left external rectus became paralysed, and subsequently the left facial nerve; the latter had nearly recovered, the former persisting; L. V. = $\frac{4}{6}$, and the optic nerve was normal. The tongue also deviated to the right side, and had done so for many months. Both attacks were ushered in by persistent headache over the same side of the face. Though there was no history of syphilis, Mr. Eales suspected the cause to be gumma, as the disease improved under Iodide of Potassium.

Bi-nasal Hemianopsia.—Mr. Eales also shewed a man, aged 74, suffering from bi-nasal hemianopsia, together with charts of the F. V. The optic discs were partially atrophic, as if from old neuritis. His sight had been failing for eighteen months; there was contraction also of the rest of the F. V. in each eye. R. V. = $\frac{8}{8}$, L. V. = $\frac{6}{15}$. This was the only case in which Mr. Eales remembered to have seen charts of this nature, which are exceedingly rare.

Sequel to a case of Traumatic Gangrene of Hand.—Mr. F. Marsh shewed this case, which had previously been shewn at the November meeting of the Section. The whole of the little and ring fingers and the tips of the two other fingers and thumb had been removed at the line of demarcation. Sensation was now perfect over the rest of the hand, the movements at the wrist joint were normal, and the boy was gaining power in the two fingers and thumb.

Myxœdema treated by Thyroid Extract.—Dr. E. N. Nason shewed photographs of a case of myxœdema in a man aged 60 treated by Tabloids of dried Thyroid Extract (Burroughs and Wellcome). The only point worth noticing concerning patient's previous history was that he had suffered five years before from marked anæmia the result of loss of blood from hæmorrhoids. The case was a very typical one, and the improvement under treatment (as shewn by the photographs) was most marked and rapid. The effects of treatment (six weeks) may be summarised as follows:—1. Rise in temperature from 96° to 98°. 2. Quickening of pulse rate from 60 to 90. 3. Desquamation of skin of whole surface of body. 4. Increased flow of urine. 5. Growth of hair. 6. Loss of mental hebetude with return of intellectual and vital energies. 7. General thinning of the body, especially of face, hands, and feet.

Aortic Aneurism.—Dr. Foxwell shewed a specimen of aortic aneurism involving the lower part of the thoracic aorta and reaching to the coeliac axis. The anterior semicircle of the vessel was almost healthy, but laterally it had undergone calcareous degeneration and great dilatation, whilst posteriorly it

was firmly adherent to, and had eroded, the vertebræ. There was no constriction of the sac where it passed through the diaphragm. It had opened, by an aperture one inch in diameter, into the base of the left lung; the lower lobe of this, and also part of the upper lobe, being quite solid and black with effused blood. The patient had died after two days' hæmoptysis of black blood. No opening into a bronchus could be discovered. The condition seemed more allied to that resulting from infarct.

Hermaphrodite.—Mr. Christopher Martin shewed a Testis removed from a case of Hermaphroditism. The patient was 20 years of age and had been brought up as a female. She came to the Women's Hospital complaining of a painful lump in the left groin. She had never menstruated. There was no development of hair either on the face or the pubes. The breasts were flat and undeveloped. The external genitals resembled in every particular those of a woman, consisting of labia minora and majora, a *small* clitoris, a vestibule with the meatus urinarius, and an ostium vaginæ with the remains of the hymen. The vagina was a blind cul-de-sac, an inch long, easily admitting the tip of the forefinger. There was no trace of a uterus. The urethra was about one inch long, and there was no trace of a prostate. When a sound was passed into the bladder it could be distinctly felt per rectum, no solid body (uterus or prostate) intervening.

Mr. Martin admitted her for operation. The "lump in the groin" was situated in the left inguinal canal and contained an oval solid tender body a little larger than a pigeon's egg. It had no impulse on coughing, and could not be reduced into the abdomen. An oblique incision was made over it and opened a serous sac (the tunica vaginalis testis) which did not communicate with the peritoneal cavity. A well-formed testicle was now exposed. It was freed from its connections, the cord ligatured, and the organ removed. The peritoneal cavity was then opened at the upper end of the incision and the pelvis explored, but no trace of a uterus was discovered. The pillars of the ring were sutured with silkworm gut and the cutaneous wound closed,

The patient made an excellent recovery and is now in service as a nurse girl. Professor Allan made a series of microscopic sections of the organ which demonstrated conclusively that it was a testicle.

Pyo-nephrosis.—Mr. Martin also shewed a suppurating kidney removed by operation from a patient of Dr. McCarthy, St. George's, Salop. For some years the patient had been suffering from "moveable kidney" and attacks of intermittent hydro-nephrosis. The patient was married on April 5th, 1894, and was spending her honeymoon in Shropshire. On April 9th she was seized with violent pain in the right loin and began to vomit. She had rigors, the temperature rose to 103° F., and the pulse became frequent. The urine became partially suppressed, the tongue coated, and the patient somewhat delirious. On April 12th Mr. Martin was telegraphed for. On examination he found a tense tender mass, the size of a large cocoa nut, filling the right loin. The urine was scanty, high coloured, contained a trace of albumen, but neither pus nor blood. Mr. Martin made an anterior lateral vertical incision over the mass and exposed the right kidney distended with offensive pus. As it was evident that the organ contained numerous abscess cavities he performed nephrectomy. The patient made an uninterrupted recovery and was now convalescent. The other kidney seemed to be quite sound, and, after the operation, secreted from forty to sixty ounces of urine daily. In addition to the large abscess cavities referred to, the cortex of the kidney removed was crowded with minute suppurating foci.

Aortic Aneurism.—Mr. Martin shewed for Dr. McCarthy, St. George's, Salop, a specimen of aortic aneurism removed *post mortem* from a miner æt. 51. The patient was under treatment eight months. The chief feature at first was a loud systolic bruit in aortic region; later on stridor was a noticeable symptom. The clinical history was one of bronchitis of a subacute character with accessions of acute bronchitis accompanied by severe dyspnoea. It was suspected to be aneurism. At first the patient did not remember any injury, but later on he distinctly

recollected straining himself in lifting a weight (piece of rock) with a lever. He felt, he said, as if something had given way in his chest.

This case is remarkable for the absence of many of the classical symptoms of aneurism, such as dulness, inequality of radial pulses or pupils, venous congestion, alteration of voice, pulsation and tracheal tugging. There was no history of syphilis. The specimen shews a large aneurism of the transverse aortic arch lined with atheromatous patches; aortic valves thickened but otherwise healthy. Trachea and bronchi markedly inflamed, the former being thinned almost to erosion opposite the aneurism.

Acute Primary Myocarditis.—Dr. Douglas Stanley shewed a specimen and drawings of a case of acute primary myocarditis. The case was that of a labourer, age 28, who was admitted complaining of dyspnoea and palpitation. He presented a collapsed condition with a very weak, rapid, and irregular pulse. The heart's impulse was diffused and weak. No murmurs were to be heard. There was a history of alcohol and exposure. The patient died somewhat suddenly. *Post mortem*, the pericardial sac contained some opaque fluid, and on the epicardial surface was a slight granular layer of lymph. The heart muscle was of a yellow red colour, and very soft. This change was most marked in the middle of the ventricular walls. Both ventricles shewed the same condition. Microscopic examination shewed intense leucocytic infiltration. There was no endocarditis. There was nothing suggestive of pyæmia to be found anywhere.

Mr. Leedham-Green shewed and demonstrated a Becker's Microtome.

Nævoid Tumour of Orbit.—Mr. Haslam shewed sections of a firm nævoid tumour of the orbit.

Large Fatty Tumour.—Mr. Jordan Lloyd shewed a solid tumour weighing 25½ pounds, removed by lumbar incision from the body of a man 45 years of age. To the naked eye the tumour has the appearance of a lipoma, but there is a more

solid interior of almost gristly consistence. It appears to have grown from the fatty tissue in front of the left kidney, and completely filled the patient's abdomen, and resembled in many of its physical signs an ordinary case of ascites. The case will be published with fuller details shortly. Five days after the operation the patient was progressing favourably.

OXFORD MEDICAL SOCIETY.

A meeting of the Society was held at the Radcliffe Infirmary on Friday evening May 11th, Mr. H. P. SYMONDS in the chair.

The following cases were shewn and discussed:—By Dr. Brookes, Thoracic Aneurism; Mr. Gowing, Multiple Exostosis; Dr. Boyd, Unusual Enlargement of the Spleen in a Child *æt.* 5; Dr. Whitelocke, Varicose Veins; Dr. Collier, Psoriasis. Pathological specimens: Mr. Gowing, Bruise of the Heart and Dilated Bladder; Dr. Collier, Thoracic Aneurism.

Dr. Ritchie read notes of the following case of Peripheral Neuritis:—A clergyman, aged 57, had influenza in February, 1890, and during the next sixteen months had probably several recurrences. He was a temperate man, and had not been exposed to diphtheritic infection. In June, 1891, he began to suffer from gradually increasing loss of power of all the muscles of the body, including those concerned in deglutition and breathing, especially the diaphragm. There was actual paralysis of the arms below the elbow, the legs below the knee, and the right seventh cranial nerve. All over the limbs and partly in the face and ears there was interference with sensation. In the forearms, hand, legs, and feet there was anæsthesia, and in the rest of the limbs there was hyperæsthesia or perversion of the various forms of general sensation. The symptoms reached a climax in three weeks, when the patient was absolutely helpless, and then gradually and completely subsided. The patient has remained well ever since. The condition could only be (1) ascending paralysis (Landry's disease) or (2) peripheral

neuritis. The former was excluded (1) by the condition having affected small muscles, of the hands and feet, and (2) by the presence of the reaction of degeneration in many of the affected muscles.

Dr. Brooke read notes of the following case :—An infant, six weeks of age, was suddenly seized with vomiting after a violent fit of screaming. A motion was passed, but the child continued to be sick at intervals. The vomiting continued during the next two days, when there was complete constipation. There were, in addition, convulsive twitchings of the face and hands, which in a short time became general. Marked retraction of the head with rigidity of the neck was present on the third day; and, as there was a strong tubercular family history, it seemed probable that meningitis was developing. On the fourth day the cerebral symptoms had abated and the convulsions had ceased, but the vomiting was constant and had become *faecal* in character. The abdomen became distended, with marked dilatation of coils of small intestine, and the child was so exhausted and wasted that speedy death seemed inevitable. Careful examination for hernia and intussusception failed to detect any tumour. On the fifth day, however, a left inguinal hernia was discovered, which was reduced by taxis. In a few hours the vomiting ceased and a motion was passed. An uninterrupted recovery followed.

REVIEWS.

CLINICAL LECTURES ON MEDICINE AND SURGERY.*

THIS, the one hundred and forty-eighth volume of the New Sydenham Society, containing eleven clinical lectures by German Authors, should help very materially to dispel the adulation

* Clinical Lectures on Medicine and Surgery by various German Authors. New Sydenham Society. London, 1894.

which has lately been accorded the medical writers of Germany. The feeling akin to disappointment that is experienced in reading these lectures is probably increased by the fact that only one of them bears a date, so that it is impossible to say (or even guess) without further investigation to what period they belong. Thus one writer makes use of this startling sentence—"the use of balneo-therapeutics, which plays so large a part among us in Germany, is in England almost a *terra incognita*"—and yet he quotes Bernheim's work published in 1888, so that the period at which this paper was written can scarcely be put forward as an excuse for such an extraordinary statement. The lectures are of course unequal in value; some are good and some are not; and perhaps the best is the first one "*On the Mutual Action of Living Vegetable and Animal Cells*," by the late Prof. Billroth. It places before the reader in the clearest possible manner what was known on this subject up to the date of its publication in 1890. The effect of vegetable cells on animal tissues is first discussed, and then the effect of animal cells on vegetable tissues. The paragraphs dealing with scar tissue as influenced by the original destructive stimuli are suggestive in the highest degree, and the whole essay cannot but encourage the investigations at present being carried out with a view to discovering a microbic cause for the growth of malignant tumours.

When it is seen that in "*Neurasthenia and its Treatment*" Prof. von Ziemssen characterises neurasthenia as a state of functional debility of the nervous system, varying from the slightest degree of weakness in a simple department to a condition of complete exhaustion of the entire nervous apparatus (p. 61) the very wide intention of this term in his hands becomes apparent. He describes cerebral spinal and motor forms of the disease, but some of the conditions he pictures would, we think, be considered well-marked examples of monomania in this country. The section on treatment is very good, and the sensible remarks on the remedial value of travelling apply to many conditions beside that of neurasthenia.

In his lecture "*On the Causes of Tuberculosis*" the same writer deals with the evidence of the tubercle bacillus being the cause of tuberculosis. He appears to doubt the generally-accepted view of the value of heredity as a predisposing cause. Metschnikoff's phagocyte theory is reviewed, but no very definite opinion is given upon it.

The fourth lecture is "*On the Healing-in of Foreign Bodies*," by Dr. Fritz Salzer. After passing in review a large number of the older observations on cases where foreign bodies had undergone a process of healing-in the author gives a series of observations of cases under his own care. Several plates illustrate the microscopical characters of the tissues in the immediate neighbourhood of bodies which have healed-in. This extremely interesting paper concludes with practical suggestions in favour of the therapeutical use of allowing foreign bodies to heal-in in picked cases and the results that may be expected to ensue.

"*Diabetes Mellitus*," by Dr. B. Hoffmeister, is a pleasantly-written monograph summarising what is known about diabetes mellitus, and, perhaps on that account, not a very long paper. It is in this respect somewhat disappointing, for it must be confessed it contains very little beyond what is found in a fairly full text-book. The paragraphs on treatment are good, especially those dealing with diet, and they bear the mark of a hand sufficiently experienced in the treatment of the complaint to write that strictly speaking diabetes mellitus is an incurable disease.

Professor von Ziemssen divides his short paper "*On Syphilis of the Nervous System*" into sections dealing with brain, cord, and peripheral nerves respectively. In the brain he recognises (1) disease of the bone and dura, (2) inflammation of the pia, (3) arteritis, (4) infective granuloma of the brain substance. He considers that there is a distinct causal relation between general paralysis of the insane and locomotor ataxia. The remarks on neuralgia of syphilitic origin are not the least interesting part of the paper.

In "*Progressive Muscular Dystrophy*," by Professor W. Erb,

the view is advanced that the conditions known as pseudo-hypertrophic paralysis, hereditary muscular atrophy (Leyden), juvenile muscular atrophy, and infantile muscular atrophy—this is the *myopathie atrophique progressive* of Landouzy and Déjerine—are really only forms of one and the same disease. The arguments in support of his view are rather tame, and much of the paper might have been compressed with advantage.

The eighth paper on "*Asthma and Diseases of the Generative Organs*," by Dr. A. Peyer, will be read with astonishment by most Englishmen we think. Sixteen cases of asthma, associated with some abnormality of the generative organs, are related in order to prove that conditions such as spermatorrhœa from masturbation, chronic metritis, uterine fibroid, catarrh of the urethra or of the vagina, etc., may be the cause of spasm of the bronchial tubes. Dr. Peyer says that his cases recovered under treatment directed to the generative organs, so that we must conclude that there was some connection between the conditions; but taking into consideration the extreme frequency of all the diseases he mentions and the rarity of their association with asthma—for if leucorrhœa be a cause of asthma it is appalling to think of the number of women liable to suffer from spasmodic dyspnœa—something beyond the mere statements in Dr. Peyer's paper is required to convince even the most casual thinker. We are sorry that the writer considers the treatment of such cases as "not within the limits of this paper," as something might have been learnt in this direction with regard, for instance, to the complete and permanent cure of a man aged 48 who had been completely impotent for ten years, and in whom, "from the very first, ejaculation had absolutely never taken place during natural coitus." For the methods resorted to by the patient in order to procure emission at all, we will refer the reader to the original, as they are somewhat novel. The only remedies mentioned by Dr. Peyer are the metallic bougie and cold water enema; and if he achieved such a happy result in this case of twenty years' standing, we offer him our congratulations; but, if he will pardon our presumption, we should like to know how long it took.

"*Traumatic Neuroses*," by Professor Adolf Strümpell deals with the group of symptoms which are usually included under the name of railway spine, but which, as the writer points out, might be just as truly and perhaps more accurately called railway brain. He divides the symptoms into general traumatic neuroses and local traumatic neuroses, and draws attention to the points in diagnosis between these conditions on the one hand and hysterical neuroses and those due to pure malingering on the other. Like all authorities who have given attention to this important subject, Professor Strümpell inclines to the belief that the symptoms in cases of traumatic neuroses are too regular and similar, as a rule, to admit of any question as to their being genuine.

In "*Enuresis Nocturna in Males*" Dr. Peyer puts forward the view that in a number of cases this condition is due to congenital weakness of the posterior portion of the urethra, and he relates a few cases to shew that where this congenital defect existed, in his opinion enuresis nocturna was brought about by masturbation. He quotes the following sentence from Lallemand, and agrees with the statement it contains:—"I have noticed all the patients who have suffered from nocturnal seminal emissions have been subject to incontinence of urine, which has lasted at least up to seven and eight years of age, and in several cases up to puberty." Now even if this be true in Germany—and we greatly doubt it—it is certainly not true in England.

The last paper in the volume, on "*Recent Advances in the Treatment of Chronic Diseases of the Spinal Cord*," by Dr. A. Löwenfeld, takes a decidedly hopeless view of the generality of such cases. Electrical treatment is extolled, and the section dealing with this remedial measure is worth reading.

THE INGLEBY LECTURES, 1894.
THE COMMON FORMS OF DYSPEPSIA IN WOMEN.*

DR. SAUNDBY is certainly to be congratulated on the choice of a subject for his Lectures. It would be by no means an easy matter to suggest one which has greater interest or importance from the point of view of practical medicine, nor, we may add, to deal with it in a more interesting fashion.

In these lectures Dr. Saundby at first sight appears to devote himself almost exclusively to dyspepsia in the somewhat special and aggravated form in which it is met with in hospital, and especially out-patient hospital practice. This, however, is only because the conditions which, as he points out, play so prominent a part in its causation, are found in their worst form in this class of practice. The vicious circle starting with overwork, and lack of fresh air and suitable and sufficient food, and followed by the rejection of one kind of food after another because of the pain caused by its ingestion, and a consequent aggravation of the original malnutrition, is strongly insisted upon; and the conclusion drawn of the absolute necessity of complete rest in bed in the treatment of this condition, and the examples given of the success of such treatment, coupled with judicious but generous dieting, constitute, we think, a lesson of the very greatest value.

Dr. Saundby's observations with regard to the constitution of the gastric juice are very interesting, and we cannot but wish that he had been able to include fuller details of them. The observation that "hydrochloric acid was as a rule absent in cases of chronic gastritis and dilatation, but in only one where there was no evidence of such organic disease," is especially interesting as lending no definite support to the view that simple anæmia and debility, independent of organic gastric disease, is often

* The Ingleby Lectures, 1894. The Common Forms of Dyspepsia in Women. By Robert Saundby, M.D. Edin., F.R.C.P., Professor of Medicine, Mason College, Physician to the General Hospital, Birmingham. Birmingham: Cornish Brothers. 1894.

associated with a deficiency or absence of hydrochloric acid. It is not stated, however, whether any estimation was made of the actual amount of acid present. We hope that Dr. Saundby will see his way to publish a detailed account of these observations, and cannot doubt that they would prove of much interest and value were he to do so.

We note with satisfaction that Dr. Saundby, whilst deprecating the extent to which the use of the stomach tube has been pushed in Germany, is of opinion that it has been too much neglected in our own country; and that he would advocate the examination of the gastric contents in severe cases, as affording valuable and trustworthy information as to the points in which the digestive process is at fault.

The second of the two Lectures is devoted to a full consideration of the principles of treatment, and is well worth reading. The first, however, is certainly the more interesting from the scientific point of view, and contains the lesson with which the reader will probably be most forcibly impressed, namely, the necessity of rest and generous feeding in the treatment of the common forms of dyspepsia in women.

A TEXT-BOOK OF THE THEORY AND PRACTICE OF MEDICINE.*

WE are glad to notice the publication of the second and concluding volume of this valuable text-book of medicine. It contains articles by Profs. Welch, Lyman, Osler, Wilson, Holland, Delafield, and Fitz, but about one-third of the whole volume is from the pen of the eminent editor, Professor Pepper, who contributes chapters on the heart and blood vessels, the œsophagus, stomach, and intestines. Prof. Osler writes on the blood and blood glands, including Addison's and Hodgkin's disease; Dr. Lyman has been entrusted with the diathetic

*A Text-book of the Theory and Practice of Medicine, by American Teachers. Edited by William Pepper, M.D., LL.D. Vol. ii. Philadelphia: W. B. Saunders. 1894.

diseases, including gout, obesity, and diabetes ; Dr. Holland does the urinary analysis ; Dr. Delafield is responsible for the kidneys, and Dr. Fitz for the liver, pancreas, and peritoneum.

The opening chapter is entitled *General Considerations Concerning the Biology of Bacteria, Infection, and Immunity*, and is written by Dr. William W. Welch ; it deals with the forms, nutrition, and distribution of pathogenic bacteria, and of the natural means whereby the organism protects itself or is protected against their influences. The section on infection is very full, and the results of modern bacteriological research are given in detail, so that the reader may acquire quite sufficient knowledge of facts to enable him to appreciate the grounds for the present standpoint of pathology. The same remarks apply with equal justice to the succeeding sections on the toxic products of bacteria, and on immunity and prophylactic and curative inoculations.

Among the articles written by Dr. Lyman we should like to select that on *Acute Articular Rheumatism* for special praise. He has written much, but his subjects, which are all of the greatest importance, do not receive quite an equal share of consideration.

Prof. Osler's excellent articles on blood diseases are enriched by some well executed illustrations, and there are also some very good plates in Professor Pepper's chapter on *Intestinal Worms*, which represent the various forms of tape-worm and their parts. The chapters on the kidney follow the elaborate and not very practical classification devised by their author, Dr. Delafield.

Speaking generally, we may say that the articles in this volume are not exhaustive, but they are well written and brought well up to date. The fault of the book is that the work has not been sufficiently distributed to get that combination of individualities which is the great charm of a systematic work where each portion has been assigned to experts specially interested in the departments they undertake, so that we get each man at his best, and the work is made up of a series of monographs, each written by the best available authority. That cannot quite be

said here, as is shewn by the allotment of the subjects detailed above. In spite of this the work is a very excellent one, reflecting great credit on all concerned in its production, and one which we shall find it not easy to beat should we ever find ourselves able to produce a system of medicine by British teachers.

THE HUMAN ELEMENT IN SEX.*

THIS book, which the author states is a medical inquiry into the relation of sexual physiology to Christian morality, we agree with in the main. She does well to point out clearly, that it is not impossible for both men and women to lead continent lives ; and also to impress on medical men and parents their responsibility in advising children as to certain signs when they arrive at puberty. We do not agree with her when she advises even further legislative measures, believing that the abolition of the C. D. Acts has done great harm, at any rate in garrison towns. It is to be feared that such a state of "Utopia" will never be reached in those towns and among such a class, that incontinent lives will be the exception.

THE SANITARY INSTITUTE.

THE preliminary Programme of the Fourteenth Congress, to be held in Liverpool in September, has now been issued. The meetings of the Congress will consist of three general addresses and lectures. There will be three sectional meetings, dealing with Sanitary Science and Preventive Medicine, Engineering and Architecture, and Chemistry, Meteorology, and Geology ; and five special conferences on the subjects of the Sanitation of the Passenger and Mercantile Marine Service, Medical Officers of Health, Municipal and County Engineers, Sanitary Inspectors, and Domestic Hygiene. In connection with the Congress, an Exhibition of Sanitary Apparatus and Appliances and Articles of Domestic Use and Economy will be held.

* The Human Element in Sex. By Dr. Elizabeth Blackwell: London ; J. and A. Churchill,

Excursions to places of interest in connection with sanitation will be arranged for those attending the Congress.

The local arrangements are in the hands of an influential local committee, presided over by the Lord Mayor of Liverpool, with the City Engineer, Mr H. Percy Boulnois, M.I.C.E., and the Medical Officer of Health, E. W. Hope, M.D., as Hon. Secretaries.

It appears from the programme that over 100 Sanitary Authorities, including several County Councils, have already appointed Delegates to the Congress; and as there are 1,500 Members and Associates in the Institute, there will probably be a large attendance in addition to the local members of the Congress.

INTERNATIONAL CONGRESS OF HYGIENE AND DEMOGRAPHY.

BUDAPEST, SEPTEMBER 1ST to 9th, 1894.

We are requested to state that the following papers, amongst many others, will be read at this Congress :—

1. By Dr. ERNEST HART (London)—Protection against Cholera in the Orient and the Hypothesis of its epidemic Diffusion; the Propagation of Cholera by River communication and by Railway lines; the direct Connection between the Propagation of Cholera and of Typhoid Fever, by water, milk, and food, together with the proved connection between the suppression of Cholera and Typhoid Fever, and the improvements in the system of drainage, etc.
2. By Prof. Dr. E. LEYDEN, Med. Privy Councillor (Berlin)—On Provisions made by large towns for Consumptives.
3. By Prof. Dr. GEORGE MAYR (Strassburg)—On Statistics and Social Science.
4. By BAURATH HERXBERG, C.E. (Berlin)—The Civil Engineer's Work in Hygiene.
5. By Prof. E. LEVASSEUR (Paris)—The History of Demography.
6. By Prof. Dr. E. T. ERISMAN (Moscow)—The Struggle with Death.
7. By Prof. Dr. C. LOMBROSO (Turin)—The Criminal.

We are also asked by Messrs THOS. COOK AND SON to state that they have been appointed Official Agents of the Congress by the London Committee, and that early application for hotel accommodation is desirable. Full information can be obtained at their offices.

New Books, etc., Received.

- Inebriety or Narcomania; its Etiology. Pathology, Treatment and Jurisprudence. By NORMAN KERR, M.D., F.L.S., Consulting Physician, Dalrymple Home for the Treatment of Inebriety. Third edition. London: H. K. Lewis. 1894.
- A Handbook of Diseases of the Nose and Pharynx. By JAMES B. BALL, M.D. Lond., M.R.C.P., Physician to the Department for Diseases of the Throat and Nose at. and Physician to. the West London Hospital. Second edition. London: Baillière, Tindall and Cox. 1894.
- Post-Nasal Growths. By CHARLES A. PARKER, Assistant Surgeon to the Hospital for Diseases of the Throat, Golden Square. London: H. K. Lewis. 1894.
- Essays on State Medicine, reprinted from the *British Medical Journal*. By ERNEST HART, D.C.L., Editor of the *British Medical Journal*. London: Smith, Elder and Co. 1894.
- Clinical Diagrams for Recording Cases of Heart Disease. By GEORGE HERSCHELL, M.D. Lond., Physician to the National Hospital for Diseases of the Heart. London: Baillière, Tindall and Cox. 1894.
- Contribution de l'Ulcère Perforant de la Cloison du Nez. Par le Dr. E. J. MOURE, Chargé du Cours de Laryngologie, d'Otologie. et de Rhinologie. à la Faculté de Médecine de Bordeaux.
- Deaf-Mutism. By HOLGER MYGIND, M.D., Copenhagen. London: F. J. Rebman. 1894.
- Congenital Occlusion of the Posterior Nares. By WM. SCHEPPEGRELL, A.M., M.D., of New Orleans.
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THE
BIRMINGHAM MEDICAL REVIEW.

SEPTEMBER, 1894.

ORIGINAL COMMUNICATIONS.

TWO CLINICAL LECTURES UPON DILATATION
OF THE RIGHT VENTRICLE.*

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THE early recognition of slight degrees of dilatation of the right heart is of such great clinical importance that I need say nothing by way of introduction to the subject of which I am about to speak in these lectures. I propose to take up in detail the special clinical features of dilatation of the right ventricle; but before doing so it is necessary to say a word or two as to the nature and extent of this dilatation as seen in the *post mortem* room.

Briefly, *post mortem* study, both of the flaccid and distended organ in cases of failure of the right side of the heart, shews that the main change is an increase of the right ventricle upwards and to the left. This increase is largely due to a distension of the conus arteriosus and of the part of the anterior wall which is adjacent to it. This upward increase may be so great that the pulmonary valves lie under the first left interspace or even under the first rib, while to the left, the ventricle may extend nearly or quite to the nipple line in the second left interspace. Increase to the right of the sternum plays, as a rule, only a secondary part as compared with that in an upward direction. This statement holds true for cases due to valvular disease as well as for those where there is none.

* Delivered at the Birmingham General Hospital, June, 1894.

Together with this change there is a displacement of the whole heart upwards and some rotation of the organ, so that the left ventricle assumes a position rather more posterior than normal, while the apex is tilted upwards and outwards, and is often brought into the fourth interspace in, or external to, the left nipple line. These latter changes are of course most evident in cases where valvular disease is not present.

For the anatomical considerations which determine the direction in which the right ventricle enlarges, as well as those which determine the displacement of the apex beat, I would refer you to Dr. Foxwell's able paper upon the "Condition of the Heart in Debility" (*vide Lancet*, October 24th, 1891, and *Birmingham Medical Review* for November, 1891). I cannot refer to this paper of Dr. Foxwell's without saying that I am indebted, directly or indirectly, to his stimulating teaching and writings for a great part of what I am about to say. I may also here add, that owing to its extent I am unable to refer to what has previously been written upon this subject, but must confine myself to the conclusions to which several years of careful clinical study and investigation have led me.

The Physical signs of Dilatation of the Right Ventricle are to some extent disguised or altered in cases of valvular disease by the changes in size which the left ventricle undergoes, and therefore, for the sake of clearness, I shall describe the physical signs of dilatation occurring in cases with no valvular disease, such as those commonly occurring in anæmia, chlorosis, and overstrain during adolescence, or those occurring during convalescence from rheumatic fever or the acute stage of pneumonia.

Among these cases of so-called functional dilatation a further distinction must be made, because the character varies somewhat according to the period of life and the circumstances under which it occurs—for two slightly different types of dilatation are recognisable. These may be called the Adolescent and the Adult type respectively.

Adolescent and Adult types of Dilatation.—In the earlier

periods of life, and especially during puberty and adolescence, the heart is naturally less resistant and less rigid than it is later in life, and is therefore more prone to excessive degrees of dilatation.

In the adolescent type of dilatation, to which my descriptions will in the main refer, the increase in size is mainly, and often exclusively, upwards and to the left, giving an increased area of relative cardiac dulness in the 3rd and 2nd left interspaces and sometimes even the 1st interspace.

In the adult type, on the other hand, some increase of the cardiac dulness to the right of the sternum usually accompanies the upward increase, and may (albeit rarely) exceed it in amount. I need hardly point out that such divisions as these are not meant to be mutually exclusive, nor are they meant to do more than assist in the mental classification of clinical observations. I also do not mean to imply that the adult type of dilatation is a type which occurs invariably above the age of 25 or 26 when the right ventricle fails; for in the degenerative period of life the heart may be so rigid that the patient dies with failure of the right heart, but with almost no clinically recognisable dilatation of the right ventricle, or, on the other hand, a man of 30 or 35 may have his heart substance so softened by rheumatic fever that his right ventricle may dilate just as rapidly and extensively as in any adolescent.

The physical signs of the adolescent type of so-called functional dilatation of the right ventricle are fairly definite and characteristic.

Inspection and Palpation of a well-marked case will shew cardiac pulsation in the second and third left interspaces as well as in the ordinary situation; and this pulsation will be noticed to extend outwards for some $1\frac{1}{2}$ or 2 inches from the sternum in the former, and to the nipple line in the latter interspace.

Further, the pulsation is not powerful like the apex beat, or like that of an aneurism; and, as was pointed out by Dr. Foxwell (*loc. cit.*), has a very characteristic wavy appearance. The wave of pulsation may be noted sweeping downwards

and outwards from the sternal end of the second left interspace. This pulsation is often further distinguishable at a glance from that of aneurism by the fact that when the patient is recumbent the pulsation varies with respiration, being most marked with the cardiac beats which occur during the pause between expiration and inspiration, as well as with the first one to occur during the latter act. That this variation is not due simply to the position of the lungs is shewn by the fact that if the breath be held at the end of expiration, the pulsation is usually less evident than during active breathing.

The pulsation can be recognised as being due to the right ventricle, and not the pulmonary artery, by the fact that it completely subsides before the occurrence of the second sound. The cardiograph also shews it to be ventricular. Detection of the pulsation above described in the second left interspace by palpation, together with the displacement of the apex beat upwards and outwards, is often all the physical examination necessary for the diagnosis of a dilated right ventricle.

In addition to this cardiac pulsation there will also usually be noticed pulsation in the veins of the neck, either truly systolic in character and due to the tricuspid regurgitation which usually accompanies the dilatation, or else "false pulsation" occurring only during inspiration and due, not to failure of the valves, but simply to the more rapid emptying of the distended veins which results from the aid given by the inspiratory suction to the forces which fill the right ventricle during the cardiac diastole.

As a result of careful cardiographic observation I have every reason to believe that some of these cases of false pulsation are also largely due to a true contraction of the veins preceding and probably also accompanying that of the auricle.

Frequently also the shock of the closure of the pulmonary semilunar valves can be clearly felt in the 2nd interspace, and in extreme cases a true systolic thrill not due to valvular disease is present in this interspace over the pulmonary artery, and may even be detected in the subclavian and carotid arteries on the left side and much less strongly in those on the right, just as is

the case with the pulmonary systolic murmur with which the thrill is associated. Pulsation may also be noted to the right of the sternum and in the epigastrium, but is less marked as a rule in either of these situations than at the base of the heart in the cases now under consideration.

The apex beat, as before mentioned, is rotated upwards and outwards so as usually to reach a point in the 4th interspace in or external to the nipple line, but in consequence of the size of the right ventricle it is often prevented from striking the chest wall and may therefore be feebly perceptible. The most prominent point of the cardiac impulse is in such a case situated internal to the nipple line and is due to the impact of the body of the right ventricle.

Percussion of the Ventricle.—Although inspection and palpation may suffice when dealing with a well-marked case, it is upon percussion aided by auscultation that we have to rely for the early diagnosis of dilatation of the right ventricle. Since the ventricle when slightly dilated lies at some distance from the chest wall and is overlapped by lung, we must rely upon the area of relative cardiac dulness for this diagnosis; and as a matter of practice better results will be got by watching the relative rather than the absolute dulness, because the latter frequently does not increase at anything like the same rate as the former when the ventricle is dilating.

In ascertaining the area of relative dulness it is well to do away with the uncertainty arising from the variation in volume of the lungs by percussing the heart while the chest is held in the position of full expiration, and of course to percuss with the pleximeter finger in line with the interspace and not across it. This is my usual practice when percussing the right ventricle, and I find that while by this means a change of note can frequently be got to the right of the sternum in a normal heart it is very unusual to get any distinct deficiency of resonance at the sternal end of the 2nd left interspace.

It must of course be borne in mind that the descent of the ribs in forced expiration will make the position of the heart

appear higher relatively to them than during ordinary respiration. This alteration is not, however, as a rule, sufficient to cause any relative cardiac dulness in the second left interspace or to make the apex beat disappear from the 5th interspace if the heart be normal.

An important feature in the percussion of these "adolescent" cases, and one which has important bearings upon the causation of the basal systolic murmur of anæmia and debility, is the fact that the cardiac dulness in the 2nd and 3rd left interspaces is increased when the patient lies down. The difference is often considerable, and there frequently is as much as an inch more relative dulness in the 2nd space when the patient is recumbent than there is when in the erect position.

Percussion of the heart in dilatation of the right ventricle shews that the area of relative dulness increases upwards into the 2nd space and broadens outward in the 3rd and 4th spaces, until in advanced cases the left edge of the dulness almost coincides with the left vertical nipple line from the 2nd to the 4th spaces inclusive. At the same time there may be a slight increase of the relative dulness to the right of the sternum, but it rarely exceeds one inch; on the other hand, there often seems to be an actual diminution of dulness in this direction. The superficial cardiac dulness broadens and also extends upwards, and may in advanced cases reach a width of one inch in the 2nd left space; it rarely extends to the right of the sternum.

Auscultation.—The diagnosis of dilatation of the right ventricle by means of the stethoscope is not so satisfactory as by the methods just discussed, for the auscultatory phenomena are not always definite and constant.

Among the physical signs which may be looked for are the following :—

1. The well-known pulmonary systolic murmur usually heard best in the 2nd left interspace.
2. Accentuation of the pulmonary second sound, and occasionally true reduplication of the second sound at the base of the heart.

3. The venous hum so well known in cases of anæmia, and called the *bruit de diable*.

4. The murmur due to tricuspid regurgitation.

5. Less frequently a false reduplication of the second sound, audible only over the ventricle and constituting one of the varieties of *bruit de galop* or "triple sound." This sound is quite distinct in origin, in time, and in area of audition from the second sound, and I have for several years called it the third sound of the heart.

6. More rarely still a tricuspid diastolic murmur accompanying or replacing the third sound above mentioned.

1. *The Pulmonary Systolic Murmur.*—The most reliable and constant of the above-mentioned phenomena is the well-known systolic murmur audible at the base of the heart to the left of the sternum, and correctly designated the pulmonary systolic murmur. This murmur is of considerable diagnostic value in the dilatation which occurs as a result of overstrain with or without chlorosis or anæmia in adolescence. Its loudness may be taken as a reliable guide to the amount of the upward enlargement of the ventricle which is present. A good illustration of this is the increase in the loudness of the murmur which accompanies the increase of the cardiac dulness when the patient lies down. The murmur is also markedly increased by exertion, and this is apt to lead to a fallacy in connection with the statement last made, for it will be increased in loudness by any sudden change of position.

The above statement that the murmur is proportional in loudness to the degree of upward increase of the dulness does not always hold true for acute cases occurring in pneumonia and allied conditions, for in them the murmur may be faint although the amount of dilatation is considerable.

Speaking however of the before-mentioned non-febrile cases of dilatation in adolescents we can say that the pulmonary systolic murmur is a good indication of the presence and amount of dilatation in any particular case, and gives the first sign of commencing dilatation and is the last sign to disappear on its subsidence. In slight cases it is only audible when the patient

is recumbent, especially after considerable exertion, and is then soft and faint, and its area of audition is confined to a small area one inch or so in diameter at the sternal end of the 2nd left interspace. When well marked the murmur is blowing in character, resembling the ordinary mitral systolic murmur, except that the pitch of the former is often lower, and may sometimes be almost humming in character. Its point of maximum intensity is over the 2nd left interspace, usually at its sternal end, although when the dilatation is considerable this point may be as much as one inch or more from the sternum.

Direction of Conduction.—It is conducted upwards and to the left to a greater extent than downwards and to the right; in fact, unless very loud it is usually not heard below the 3rd interspace. When loud it is audible into the subclavian and carotid arteries, although it is better conducted to those of the left than those of the right side. When very loud it is even audible into the axillary arteries and over a great portion of the upper part of the chest anteriorly. It may even be accompanied by a distinct systolic thrill, which in extreme cases may be palpable over a wide area and follows the same lines of conduction as the murmur.

Etiology of the Pulmonary Systolic Murmur.—The exact cause of this murmur is not perfectly certain, but the pathological condition on which it depends seems, as was pointed out by Dr. Foxwell (*loc. cit.*), to be the upward displacement of the anterior portion of the root of the pulmonary artery. In consequence of the upward dilatation and displacement of the anterior wall of the right ventricle, while the inter-ventricular septum which forms the posterior wall remains fairly normal; there is some distortion of the pulmonary artery. This seems to be of two kinds:—Firstly, alteration in the direction of the artery in relation to the line of the ventricular cavity, in consequence of the artery having to reach its fixed point (*viz.*, the bifurcation of the trachea) from a point under the 1st interspace, instead of running its usual course from under the 2nd interspace to the bifurcation. Secondly, a potential redundancy of

tissue in its anterior wall. Normally the anterior wall runs from a point subjacent to the middle of the second costal cartilage in a curved course to the point where the artery bifurcates close to the spine, a distance say of two inches and a half. When however the right ventricle is dilated the anterior wall of the artery commences at a spot nearly an inch nearer to the point of bifurcation than normal, while the posterior wall retains more nearly its normal relations. The result of this is that when the artery is full the anterior wall, being somewhat relaxed, will distend more easily than is normally the case, and therefore during each systole there will be formed an aneurism-like dilatation of the artery. We would expect this bulging to be more marked in the recumbent than in the erect posture, because in the latter case gravitation tends to prevent the heart from taking quite such a high position as it would otherwise do. Strong evidence in favour of the above theory is given by the fact that the murmur increases in loudness proportionally to the increase in dulness which occurs when the patient lies down, the murmur always being louder when the patient is recumbent than when erect.

According to this theory the conduction to the vessels of the neck is of course due, as was pointed out in the paper above referred to, to the contiguity of the aorta and pulmonary artery. If *post mortem* both sides of the heart be distended with hard paraffine before the removal of the heart and lungs from the body, the anatomical reason for this conduction at once becomes apparent, as well as that for the better conduction of the murmur to the arteries of the left side than to those of the right. The production of a thrill is easy of explanation by this hypothesis, for there is an aneurismal dilatation of the pulmonary artery into which the blood enters in a direction nearly at right angles to the line of the artery.

2. *Accentuation of the Pulmonary Second Sound.*—

Accentuation of the pulmonary second sound is of course of extremely common occurrence in these cases, but is of little *diagnostic* value so far as the presence or absence of dilatation is concerned. The point of maximum intensity of the second

sound is however of value as giving an indication of the situation of the pulmonary valves. Thus in dilatation of the right ventricle the P. M. I. of the second sound is usually higher than normal, and as the dilatation subsides this point may be observed to alter its position and descend towards its normal situation, shewing of course subsidence of the dilatation. The degree of accentuation of this sound gives us also important information as to the tension of the blood in the pulmonary artery, and shews to some extent the amount of work which the ventricle is doing.

3. *Bruit de Diable*.—The venous hum usually associated with anæmia, which is audible at the root of the neck over the great veins and is commonly called the *bruit de diable*, is also intimately related to failure of the right ventricle, although I do not think there are sufficient reasons for thinking that it cannot occur apart from this failure.

As is well known this murmur is best heard in the erect position, and disappears to a greater or less extent, but often entirely, when the patient lies down. The pathological explanation of this is at once made evident if at a *post mortem* on one of these cases the trouble be taken of distending the right heart and great veins with hard paraffine before its removal from the body. Such an injection shews very beautifully the constriction of each dilated vein at the point where it joins another vein, due to the mechanical support afforded at these spots. A murmur must arise on the proximal side of each of these constrictions as the blood flows towards the heart. When the patient is erect the action of gravitation is to increase the pressure of the blood flowing into the innominate and superior cava from the head and neck, thus increasing the distension of the veins. When the patient is recumbent this pressure is lessened, and the veins near the heart being less distended, the relative constriction at the points of junction is less and the venous hum lessens or disappears as a consequence.

The clinical importance of the venous hum is that it shews the existence of want of tone in the great veins. This fact may be

of considerable importance if, as seems to me likely, it be proved that the contraction of the veins plays an important part not only in the filling of the auricle, but also in checking tricuspid regurgitation by means of a more prolonged and powerful contraction than normal.

4. *The Murmurs due to Tricuspid Regurgitation.*—Theoretical as well as practical considerations seem to shew that tricuspid regurgitation must accompany dilatation of the right ventricle, at all events if it be well marked. But from a clinical point of view it is sometimes difficult to point to any physical sign which makes its presence or absence certain in any particular case. It can, I think, be truthfully affirmed that there is no physical sign which is characteristic of tricuspid regurgitation in the way in which the systolic apical murmur with displacement of the apex beat is characteristic of mitral regurgitation.

Perhaps the two most reliable signs are—firstly, the presence of a systolic murmur audible in any or all of the following situations:—(a) Over the body of the right ventricle, or (b) over the right auricle, and especially over its appendix, when this portion of the heart comes near enough to the chest wall to be within reach of the stethoscope, and also (c) over the situation of the superior vena cava just to the right of the sternum in the 1st and 2nd interspaces; and secondly, the presence of true systolic pulsation in the veins of the neck or over the liver.

The diagnostic value of the former sign is diminished by the fact that it is often extremely difficult to differentiate it from the pulmonary systolic murmur with which it is almost invariably associated in adolescent cases, as well as by the fact that it may (albeit very rarely) be absent in even well-marked cases of tricuspid regurgitation. Such a case is published in the *Deutsche Med. Woch.* for May 31st, 1894.

True pulsation in the veins of the neck is almost absolutely reliable as a positive sign of tricuspid regurgitation, but is valueless as a negative sign. Very frequently cases of undoubted tricuspid regurgitation are met with in which this sign is completely absent. As a most marked instance I may quote the

case of a girl aged 15 who was under my care in this hospital, suffering from mitral disease, with an enormously dilated heart. The apex was in the axilla six and a half inches from the sternum. The cardiac pulsation was visible from the 2nd to the 7th interspaces inclusive, and extended to the right of the sternum as far as the right nipple line (two and a half inches). The pulsation to the right of the sternum was shewn by the cardiograph to be due to the auricle, and there was in this case so much tricuspid regurgitation that a systolic thrill was clearly felt over the auricle in the neighbourhood of the right nipple; nevertheless there was in this case no venous pulsation in the neck, nor was there any pulsation of the liver during the six months that she was under observation.

Systolic Tricuspid Murmur.—In cases where there is no true pulsation in the veins of the neck the tricuspid systolic murmur is often of great diagnostic value. The chief point of difficulty is its distinction from the pulmonary systolic murmur. The main distinguishing features are as follow :—The area over which it is heard is as a rule lower than that of the pulmonary murmur. The latter is rarely heard below the 3rd space, whereas the area of audition of a pure tricuspid murmur is approximately an oval-shaped area bounded on the right by the sternum, above by the 3rd rib, below by the 5th rib, and extending a variable degree towards the nipple line in the 4th space. This area varies according to the amount of dilatation present, and may be approximately put down as coinciding with the inner half or two thirds of the area of the absolute dulness.

A difference in pitch between the two murmurs will sometimes be noted by which they can be distinguished, but the character of the tricuspid murmur varies much in different cases.

A point of diagnostic value is often obtained in the fact that the tricuspid systolic murmur is heard very loudly at the sternal ends of the 2nd and 3rd right interspaces over the situation which the tip of the right auricular appendix would occupy in a dilated heart. It is however in my experience unusual to find the murmur audible here in the adolescent type of functional

cases. It is more common in valvular disease and with the adult type of dilatation.

When the murmur is audible in both the 1st interspaces over the great veins it is very difficult to distinguish it from an aortic murmur. The point to be relied upon is its loudness close to the sternum as compared with its feebleness or absence over the carotids and distal portions of the subclavians; a moderately loud aortic systolic murmur being of course loudly conducted along the arteries.

5. *The Third Sound of the Heart.*—By this name I consider that we ought to designate the sound which when added to the second sound of the heart gives rise to what is known as “a reduplication of the second sound which is audible only at the apex.” The occurrence of this sound at the apex or over the right ventricle of the heart produces one of the varieties of what is known as the *bruit de galop*, or triple sound of the heart. The most familiar instance of its occurrence is in mitral stenosis, when there is audible at the apex a presystolic murmur and “reduplicated second sound.”

It is of course an abnormal sound in the human heart. As regards the time of its occurrence, it follows the second sound, the interval being nearly equal to that between the first and second sounds, and moreover in any one case the interval appears to be constant and does not vary when the heart is irregular.

In character it is a faint sound, and is often, in the cases we are dealing with, inaudible with a wooden stethoscope or when the binaural stethoscope is pressed too firmly. It is very apt to be inconstant in its occurrence, and is frequently only to be heard with the heart beats which occur during the pause between expiration and inspiration and at the commencement of inspiration. Its area of audition is over the body of the right ventricle, and it is not loud enough to be conducted widely.

In the cases we are now dealing with clinical observation seems to shew that the two factors upon which this sound depends for its production are the amount of dilatation of the

right ventricle and the strength of the forces producing the inrush of blood into the ventricle on the opening of the tricuspid valve. Thus in a feebly-acting and dilated ventricle we get no third sound, but as the strength of the heart increases a third sound often appears for a time and disappears again when the ventricle further regains its tone and the dilatation disappears.

I am unable here to go fully into the causation of this "third sound;" and I will only say that I feel sure that this sound, as well as the diastolic murmur, which is often closely associated with it and which will shortly be discussed, are both of them manifestations of an active expansion movement on the part of the ventricle whereby blood is sucked into it from the auricle and veins immediately after the closure of the semilunar valves.

The theory of the production of the third sound is briefly as follows:—In consequence of the dilatation of the ventricle the chamber does not empty itself completely during its systole, and therefore at the end of this act the valve flaps are separated from the ventricular walls by a certain amount of blood and are not closely applied to them as in the normal heart. The valve flaps are thus unsupported, and when the ventricular suction comes into play they have to bear the brunt of the first inrush of blood instead of falling back in contact with the expanding walls. If this inrush be sufficiently powerful, the valve flaps will, on relaxation of the *musculi papillares*, be thrown back against the ventricular wall in a manner calculated to cause a sound. If the *cordæ tendineæ* do not admit of such a movement on the part of the valve flaps, the mere stretching which they would undergo would be quite sufficient to cause the sound of which we are speaking.

When however from excess of dilatation or other causes the valve flaps are unable to move back against the ventricular wall the conditions are exactly such as ought to produce not only a sound, but also a low-toned or humming murmur, for eddies are certain to be caused in the blood which separates the valve flaps from the ventricle walls. Such a murmur we occasionally hear accompanying and following the third sound in dilatation of the right ventricle. It is not however often heard in cases of functional

dilatation because the combination of vigorous cardiac contractions with a greatly dilated ventricle are not to be expected, and if it does occur it can only be a transient phenomenon in consequence of the rapid diminution of the dilatation when the heart commences to act well. The circumstances are more favourable for the production of this murmur when the dilatation is secondary to valvular disease of the left heart.

The most marked instance of this third sound and murmur occurs in the left ventricle in mitral stenosis, for there the valves are permanently prevented from assuming their normal position as the ventricle enlarges during its expansion movement, and the ventricle is moreover not only of normal strength, but is able also to alter the mode and strength of its contraction so as to develop a greater amount of suction, as is evidenced by the increased loudness and sharpness of the first sound in mitral stenosis.

6. *The Diastolic Tricuspid Murmur.*—We have already discussed this murmur when dealing with the third sound of the heart, with which it is so closely associated clinically. It only remains to say that the murmur is usually faint and low-toned or humming and is audible simply over the body of the right ventricle. The outer limit of its area of audition is often so sharp as to suggest the probability that when present the localisation of this murmur may serve as a guide to the position of the inter-ventricular septum. As regards its occurrence, it is rare in functional dilatation in adolescents, and I have only observed it three or four times out of several hundred cases carefully examined. In dilatation of the right ventricle secondary to valvular disease it is much more frequent.

The Adult type of Dilatation.—I think I have said enough already as to the points which separate the adolescent type, which I have been discussing, from the adult type, to make further dwelling upon this subject unnecessary.

Dilatation Secondary to Valvular Disease—Most of what I have already said will be found to apply to this form of dilatation if allowance be made for the effect of the changes in the left side of the heart which result from the primary lesion. The main

difference between this and the former class of case is that the ventricle here is not necessarily weaker than normal, and is of course often hypertrophied. Speaking broadly, the dilatation of the heart to the right of the sternum is more apt in these cases to equal or exceed in amount that in the 2nd and 3rd left interspaces; and further, the systolic tricuspid murmur is in these cases more marked and the pulmonary systolic murmur less marked than in the functional cases. Other points of distinction may be gathered from what I have already said.

Symptoms.—The symptoms of dilatation of the right ventricle are mostly of the usual type, viz., breathlessness, palpitation, etc. There is one symptom however which is fairly distinctive of this condition, and that is, pain localised to the region of the second and third left costal cartilages. This pain may be fairly acute, but more usually it consists of a dull pain and is frequently accompanied by a sense of tightness in this region; and there is often in the adolescent class of cases a feeling as if too large a bolus of food had been swallowed and was sticking in the throat at the level of the 2nd left interspace. These sensations are often relieved somewhat when the patient takes a prolonged deep inspiration, and this sighing voluntary inspiration may often be noted in these cases. In addition there is sometimes tenderness on percussion over the dilated ventricle in the 2nd left interspace, and there may even be tenderness on pressure.

Etiology of Dilatation of the Right Ventricle.—Failure of the right ventricle will result from (1) excessive work thrown upon the normal ventricle, *i.e.*, absolute overstrain; or (2) normal amount of work thrown upon a weakened ventricle, *i.e.*, relative overstrain.

1. "*Absolute*" overstrain.—In this class of case the cause of the failure and dilatation of the ventricle is for the most part not inherent in the ventricle itself. The most typical examples of this class are those where there is dilatation of the right ventricle as a result of overstrain from excess of athletic exercise or from excess of heavy work, such as lifting heavy weights, in otherwise

strong and healthy young men. These cases may be subdivided into—(a) those where the strain upon the right ventricle is indirect and due to the demands of the systemic circulation, as in the cases above mentioned, or in valvular disease of the heart ; or (b) when the strain is due to primary embarrassment of the pulmonary circulation. Of this the most typical instance is of course emphysema. Pneumonia also produces dilatation from this cause, and I believe that we must also include in this category many if not most of the common cases of dilatation of the right ventricle in anæmia and chlorosis. Of course, in these last-named cases, a prominent feature is the weakness from the anæmic state of the blood, but I think we have sufficient ground for believing that there is in addition an abnormal amount of contraction of the pulmonary arterioles caused by the poor state of the blood. This is a subject for physiological experiment. The fact that in suffocation there is a spasm of the pulmonary arterioles which is removed by nitrite of amyl, as recently pointed out by Sir George Johnson, is in favour of the above supposition. Two years ago, in my thesis for the degree of M.D., I expressed my belief that the pulmonary vasomotor system had in all probability much to do with the failure of the right side in anæmia, but unfortunately ill health has prevented me from investigating this subject further except so far as to enable me to say that there seems every probability that nitrites may prove of considerable value in these cases.

2. *Relative Overstrain as a Cause of Dilatation of the Right Ventricle.*—As a typical instance of this, I may give the dilatation which is apt to occur after the fall of the temperature in rheumatic fever, but more especially when the patient first begins to get up. In such a case I have seen the right ventricle dilate out nearly to the left nipple line in the second left interspace in the course of a day or two.

The dilatation in cases of anæmia and chlorosis is also in part due to weakening of the ventricle from malnutrition ; and as another instance, may be mentioned the weakening due to many acute febrile conditions.

In conclusion, I may say that we have much yet to learn as to these changes in the right side of the heart, and that there is scope for much careful clinical study as to the effect of drugs upon the pulmonary circulation, upon the great veins, and upon the character and strength of the important expansion movement of the ventricle.

A CONVENIENT CLINICAL MANOMETER.

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SINCE the publication of the Gulstonian Lectures (March 1894) I have been frequently asked to give a description of a convenient manometer for the estimation of blood pressure in the radial artery. Exhibited at these lectures it was this piece of apparatus which seemed to be most generally interesting, since it furnishes useful information which can be obtained in a moment, and needs no special skill in its application. It can therefore be used by the busiest general practitioner, and, as it directly affords some indications for treatment, it may even be expected to come into general use. Moreover, being very inexpensive, it is within the reach of everybody.

The principle of a clinical manometer is that gradually increasing pressure is applied to an accessible artery, until a pressure is reached when the pulse to the peripheral side of the pressure is no longer perceptible. If the artery under investigation were fully exposed, and lying on a hard bed, this pressure would accurately represent a slight excess over the intra-arterial blood pressure.

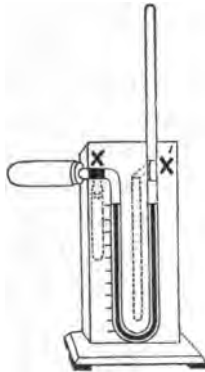
In practice we have to allow for certain sources of error. These, however, can themselves be estimated, and the proper corrections can therefore be made.

According to v. Basch we have to allow for—

	<i>Millimetres of Mercury.</i>	
	Minimum.	Maximum.
1. Overlying skin	6	8
2. Unfavourable position of artery	20	60
3. Compressibility of arterial wall	1	5
4. Difficulty in estimating disappearance of pulse	5	5

The chief source of error is therefore to be found in the unfavourable position of the artery, the other errors together amounting to but 10—15 mm. Hg.

For the purpose of measuring the amount of compression the ordinary U-shaped mercurial manometer is most conveniently adapted, as shewn in the figure.



The shorter limb, which should be of a vertical height of ten inches or more, is bent to a right angle at its upper end, which is inserted into a perforated indiarubber cork. Over the indiarubber cork is pulled an ordinary airtight indiarubber finger-stall, which is ligatured tightly to the cork. The longer limb of the U, open at its end, should be double the length of the shorter limb. The shorter limb is graduated into fourteen centimetres, which are again divided into millimetres if desired. The zero begins at the upper level of the mercury, which should lie about an inch below the bent angle. The space above the mercurial level, communicating with the interior of the finger-stall, remains of course filled with air.

If now the patient's wrist is conveniently adjusted beneath the finger-stall in a slightly extended position, and pressure be exerted on the finger-stall by two or three fingers of the operator, the mercury in the shorter limb will sink, and the difference between its level and that in the larger limb will represent the pressure exerted through the finger-stall; or, in other words, and allowing for the above-named sources of error, the approximate intra-arterial radial blood pressure is obtained. If, for instance, when the pulse disappears the Hg. in the shorter limb has sunk to 100 mm., then the pressure = the height of Hg. in the longer limb = 200 mm. Hg.

An objection to the use of a manometer of this kind has been that it is not portable. This is owing to the facts (1) that the longer limb of the tubing is inconvenient and liable to break, and (2) that the Hg. runs out through the open end of the longer limb when the apparatus is tilted, as also back into the finger-stall. I have overcome both these difficulties at once in a simple manner. The longer limb of the tube is fractured in mid-length, and the shorter limb in its horizontal part (at x and x'), the fractured ends being united in each instance by a short thick piece of indiarubber tubing. When the instrument is not in use, the tubes can be bent as indicated in the dotted lines (see fig.), and retained in that position by an elastic ring encircling the whole. An outer case may be made to fit over all. Seeing that it is now perfectly portable, and that it not only gives valuable information, but is both convenient and inexpensive, it is to be hoped it may become more generally used. Messrs. Chave and Jackson, of Hereford, have made such instruments under my directions, and can supply them if requested. Their cost is no more than that of a clinical thermometer.

THE PROGNOSIS AND TREATMENT OF EMPYEMA IN CHILDHOOD.*

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In the following pages I shall confine my remarks chiefly to empyema as it occurs in children, for it is from such subjects that my experience has been chiefly gathered, and such purulent collections are much more frequent in childhood than in adult life.

Besides in its greater frequency, the disease in childhood differs in other respects from the same affection in adults. The pus in children forms more rapidly, and the disease reaches its height so quickly that there is no time for adhesions to form. The pleura is not so much thickened, and the lung is therefore enabled to expand more readily after operation. For these and several other reasons the prognosis is much better in childhood.

In dismissing, as beyond the scope of the present paper, the etiology and diagnosis of the disease, I should like to say just two words :—Firstly, that I am confident that many collections of fluid in the pleural cavity of children are purulent from the beginning, and should of course be treated as such ; and secondly, that in all cases where diagnosis is at all doubtful, we should not hesitate to use the hypodermic syringe as a means of diagnosis. With ordinary care and cleanliness no harm can come of it, and all doubts may be cleared up, and often much valuable time saved, by an early recourse to its use.

Of the treatment of empyema by aspiration, I need only say that it would be an ideal method of dealing with the collection, if the further formation of pus could be stopped ; but unfortunately this is not the case, and as a rule repeated aspirations

* Read before the Queen's College Medical Society, January 10th, 1894.

only end after all in the necessity for some cutting operation. Aspiration is useful in two classes of cases. Firstly when the empyema is small and localised. Its use in these cases serves to confirm the diagnosis of the presence of pus, and occasionally effects a complete cure, no re-accumulation following. Secondly, in cases where the collection is a very large one, and the patient much exhausted and in imminent danger of suffocation. Aspiration of part of the fluid, a procedure attended with but little shock, will in such cases tide him over the immediate risk of asphyxia until a free opening can be made when he is in a better condition to stand the operation.

But the ideal treatment of all cases of empyema, like that of any acute abscess, is a free incision into the suppurating cavity and drainage.

There has been much discussion as to the best site for opening the empyema.

1. Mr. Marshall advocated a point immediately outside and below the junction of the fifth rib with its cartilage. The chest wall here is thin, and it is the point where empyemas, if left to nature, often point. The disadvantages of such a site are that the ribs are so closely approximated at this point that a free exit is not afforded to the pus, and that the opening being made so far anteriorly, it is not a dependent one.

2. A second place advocated is the ninth space vertically below the angle of the scapula. This has the advantage of being dependent, and drains well the lowest part of the pleural cavity. But its great drawback is the thickness of muscular tissue that is here met with, and the fact that as the lung expands and fills up the pleural cavity, it comes in contact with the thoracic wall at first posteriorly, and so the opening is liable to be obliterated before the anterior part of the cavity is soundly healed.

3. In opening an empyema the surgeon must necessarily cut down at the point where, by the physical signs and use of the exploring needle, pus is known to be present. But if the pleura be distended with pus, the most favourable place to make an

opening is, in my opinion, in the sixth or seventh or even the eighth intercostal space vertically below the posterior fold of the axilla. The thoracic wall is here but moderately thick, the ribs lie parallel and well apart, and, as the child during convalescence usually lies on the affected side, the opening is a dependent one; and finally, it is not obliterated by the lung as it expands.

A year or two ago some interesting specimens taken from cases of empyema were shewn at one of our medical societies by Dr. Ratcliffe. He shewed by these specimens that, at any rate in some of these cases, the lower part of the pleural cavity is obliterated by adhesions which bind the diaphragm to the thoracic wall. If an opening were made in such a case in the ninth intercostal space, the surgeon would, in all probability, open the peritoneal cavity and not the pleural one. This, in fact, has been done.

With reference to the operation itself, though as a rule by no means a difficult one, it may be useful to draw attention to a few points in the technique, based on a personal experience of 35 cases.

First, as to the employment of an anæsthetic. There is no doubt that the presence of a large collection of fluid in a patient's chest renders the use of any anæsthetic for its removal unusually dangerous; for, owing to the irritability of the air passages, not only is there considerable difficulty in getting the patient under its influence, but at the moment of release of the pus, when the intra-thoracic pressure is suddenly diminished, serious and sometimes alarming symptoms of syncope manifest themselves. This syncope is most apt to occur when the collection is a left-sided one, and is due partly to the sudden alteration in the intra-thoracic pressure, but partly also to a mechanical cause—namely, the sudden alteration in position of the axis of the displaced heart. Nevertheless, except in very young children, or in cases where the patient appears almost moribund, an anæsthetic should always be employed; and chloroform should always be preferred to ether in such cases,

ether being too irritating to the congested mucous membrane of the air passages. In many cases, where no difficulty is experienced in finding and evacuating the purulent collection, the use of a general anæsthetic may seem unnecessary. But if bleeding be encountered, or any difficulty met with, the struggles and cries of a conscious patient will materially embarrass the operator. For the same reason cocaine, though it may render the operation comparatively painless if injected previously, will not assist the surgeon if any unforeseen difficulty be encountered.

The actual presence of pus immediately beneath the point where it is proposed to make the opening should always be verified immediately prior to making the incision. It is a good plan in some cases to leave the needle of the exploring syringe in situ, and to cut down into the pleural cavity on it.

When the skin and overlying muscles have been divided with the scalpel, and any bleeding point secured, the intercostal muscles and pleura may be quickly cut through by plunging a small scalpel immediately above the upper border of the lower rib into the cavity, and the opening thus made enlarged by a pair of sinus forceps or a blunt-pointed bistoury. The oozing of blood, which is frequently troublesome in the deeper parts of the wound before the pleura is opened, and which is due to the inflamed condition of the tissues overlying the empyema, quickly ceases on evacuation of the pus.

By keeping the scalpel close to the upper margin of the lower rib, the danger of wounding the intercostal artery is avoided. If the artery unfortunately be wounded, the best method of securing it is to excise a small portion of the rib in the groove of which it lies. When this has been done, no difficulty will be experienced in securing it. This I have done twice.

It is better not to aim at a complete evacuation of the pus at the time of operation, but to allow the empyema to empty itself into some absorbent dressing afterwards. The risk of rupture of some vessel in the lung or of dangerous collapse is thus partly avoided.

The after-treatment of these cases is of great importance ; and in this connection I would venture to say that when an empyema has once been opened, it, like any other opened abscess, is purely surgical, and should be treated by the surgeon. It is but natural that in this, as in all operations, the operator himself will take a greater interest and care in the after-treatment of the case than anyone else less interested.

During convalescence the three factors which assist most the rapid expansion of the lung and closure of the cavity are good wholesome and easily digested food, fresh air, and a course of calisthenic exercises. As soon as convalescence is sufficiently established, open-air exercise should be encouraged and even insisted upon. A daily walk or drive, whenever the weather will permit, will materially assist in the closure of the remaining cavity. Seaside air, and especially the air of such seaside places as Margate or Rhyl, suits such children best, and a sojourn of some weeks at either of these places acts in many cases like a charm in inducing chronic indolent sinuses which have previously resisted all our efforts to close them, to do so spontaneously.

Such children should also be daily put through a course of calisthenic exercises, and be taught the use of dumb bells. By such means the muscles of extraordinary respiration are exercised and strengthened, and the shrunken chest walls and collapsed lung encouraged to expand.

The prognosis of an uncomplicated case of empyema in a child of healthy parents, when treated in the manner advocated, is an extremely good one. The age of the patient, and the time the empyema has been in existence before being opened, will both exercise an influence over the ultimate result.

In children, except in infants under the age of two years, the prognosis is always better than in adults, on account of the greater recuperative power they possess, the general absence of other organic disease, and the greater expansive power of the lung in them after operation. In cases, however, in which the effusion has been in existence for some long period before

operation, the lung is often so firmly bound down by strong adhesions that expansion is a very slow process and never complete.

As bearing on the question of prognosis, I have collected the records of all the children operated upon for empyema at the Children's Hospital during the two and a half years ending in May last. During that period 70 patients have been operated upon for the relief of empyema. In two cases aspiration cured the patients, the other 68 were incised and drained. Of these cases, 70 in number, 61 recovered and were discharged, while 9 died. This gives a mortality of 12·8 per cent. Three of these cases were complicated with pericarditis, and all died, and one had acute nephritis and was fatal. This leaves 5 deaths in the remaining 66 uncomplicated cases, or a mortality of 7·6 per cent. The ages of the fatal uncomplicated cases were as follows:—7 months, 18 months, 18 months, 2 years, 2 years. In other words, no uncomplicated case proved fatal in a child over the age of 2.

The nature of the exciting cause of the empyema has also considerable influence on the prognosis, as might be expected.

It has been shewn * that cases of empyema may be divided into four classes, distinguished from each other by the micro-organisms which may be found in the pus, and which are held to be the exciting cause of the trouble.

1. The first class of cases and the most favourable ones are those which follow or complicate pneumonia. In these cases the diplococcus pneumoniæ may be found and cultured.

2. The second class of cases contain the streptococcus and staphylococcus pyogenes aureus—that is to say, the micrococcus found in acute abscesses in general. In these the prognosis again is good.

3. The third class of cases contain in the pus the bacillus of tubercle or its spores. These cases are far more serious in regard to the ultimate prognosis, and the empyema in them is frequently secondary to tubercle in the lung.

* H. Koplik, M.D., *Amer. Jour. Med. Sciences*, vol. cii.

4. The last class of cases are those following a focus of suppuration in some distant part of the body, and are almost always fatal. In the pus of the empyema streptococci of a very virulent type may be found.

A concurrent inflammation of another serous membrane always adds greatly to the gravity of a case of empyema. Pericarditis was responsible for three of the fatal issues I have quoted above, and in my own cases has twice caused death. It renders the prognosis almost certainly fatal. Pleurisy or empyema of the opposite lung in like manner adds to the gravity of a case, but is not so necessarily fatal.

Several complications may arise during the treatment of an empyema which call for a few words as to their treatment. Violent coughing as the pus is being expelled is probably caused by a too rapid expansion of the lung. It is always a sign to stop the evacuation for the time, lest in the efforts of coughing some serious hæmorrhage be produced.

The collapse which occasionally occurs when the empyema is opened has also already been alluded to. It is due partly to the sudden removal of pressure on the large vessels inside the chest, and the inrush of blood from the heart into the expanding lung, and partly to the sudden alteration in the heart's position. The collapse is to be treated by general measures used for its treatment when arising from other causes, and all evacuation of pus must be temporarily stayed.

Deaths from embolism and œdema of the expanding lung occasionally occur, but of such complications I have had no experience.

The opening in cases where the discharge continues for a long period occasionally becomes blocked by a mass of new bone formed around it. This new bone may join the ribs above and below together, and is due to a chronic periostitis set up by the friction of the tube against the ribs. In such cases, to secure a free vent for the pus, it becomes necessary to resect portions of the rib above and below the opening, taking care to remove their periosteum with them.

If the discharge, in spite of precautions to prevent it, becomes septic, with a sour offensive smell, a gentle irrigation of the pleural cavity with some very mild antiseptic, such as boracic lotion, is the best method of rendering it sweet again. Irrigation or washing out the pleural cavity is a procedure which has occasionally been followed by sudden collapse and death, and for this reason is not to be recommended as a routine practice or without some special reason. But when done gently, and if care be taken that the fluid be not injected under pressure, and that a free exit be allowed for it, it is but rarely followed by any untoward circumstance. It is astonishing how quickly empyemas which have been stinking before being opened or have become septic afterwards, become sweet under irrigation.

Should the cavity still refuse to heal and close, but continue to discharge after the lapse of some months, and at the same time there be no general constitutional cause, such as tubercle, why the case should not do well, the probability is that the cause of non-closure is a mechanical one. The lung in these cases is bound down to the spine by old dense adhesions which prevent its expansion, and the ribs have fallen in towards the collapsed lung as much as they can, and lie tightly approximated to one another.

Between the two a cavity is left, lined with granulations, which cannot contract and close because its walls are held firmly apart. In such a case resection of a portion of several contiguous ribs should be undertaken, and will often effect a cure. Such a proceeding is more urgently called for if the chronic suppuration is beginning to induce amyloid or lardaceous disease, as shewn by the enlargement of the liver and spleen and the appearance of albuminuria.

I have operated on eight such cases, and in five of them the operation has been followed by a speedy cure. It is not necessary, as a rule, to remove the parietal pleura with the ribs, unless it be much thickened and resisting, and the operation is not usually a severe one.

There is only one other complication to which I wish to

allude before bringing my paper to a close. It is, fortunately, very rare, but has been recorded a sufficient number of times to shew that the coincidence is not a chance one. It is the occasional supervention of cerebral abscess in cases of empyema with a septic discharge without any other evidence of pyæmic infection. Such cases are probably due, as Böttcher first pointed out, to the carrying of septic emboli from a branch of the pulmonary vein into a branch of the cerebral artery.

THE ESTIMATION OF THE MOTOR POWER OF THE STOMACH.

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THE estimation of the motor power of the stomach has of late become a matter of importance, partly as an aid to the recognition of early and doubtful cases of dilatation, and partly from the point of view of treatment and prognosis in many cases of stomach disorder ; for it has been shewn that this factor plays no small part in the causation of dyspepsia, and is of itself both a direct cause of malnutrition and a predisposing cause of gastric dilatation. The estimation may be attempted in either of two ways :—

In the first of these, the prolongation of the time required by the stomach to get rid of a fixed quantity of food beyond a certain period determined by experiment, is taken as an indication that its motor power is deficient. The variations in this time, however, are said by many observers to be so great even in health in different individuals, and in the same individuals under varying conditions, that inferences drawn from its measurement can have but little value ; and in addition, the necessity for the passage of the stomach tube puts this method out of the question in the great majority of cases. In those cases, nevertheless, in which for other reasons it is thought desirable to

administer a test breakfast, I have been in the habit of attaching some weight to the measurement of the quantity of fluid removed by the stomach tube as affording a rough means of estimating the combined motor and absorbing power of the stomach wall, two functions which are very closely associated with one another. Thus, the test-meal containing a pint of fluid, and the tube being passed an hour after its ingestion, I have found that in cases in which these two functions are unimpaired a very small quantity only of fluid can usually be obtained, whilst it is even not infrequently necessary to add a little water to the gastric contents before they become sufficiently liquid to pass through the tube; and although there is little to be gained by attempting to lay down any rule in the matter—the important point being the recognition of the fact that in a vigorous stomach nearly all the fluid is absorbed, and that the greater the quantity of fluid returned the less is the absorption and motor power—I shall, I think, be well within the mark if I assign two ounces as the maximum quantity which should be obtained from the vigorously-acting stomach an hour after the ingestion of the test-meal. On the other hand, I have found in my own experience that this quantity is always increased in cases, for instance, in which any degree of dilatation has been found to exist, this being a condition in which both functions are certainly materially impaired; and that the fluid becomes more plentiful in proportion to the extent of the dilatation, amounting to as much as sixteen ounces in one case, in which the stomach had been emptied as a preliminary measure before the administration of the meal. The test is of course a rough one, and cannot be depended on by itself to diagnose with certainty slight degrees of deficiency; but I am satisfied that, where a test-meal has for other purposes to be given, the information obtained on this point is of some value.

The second and now well known method depends upon the fact that salol retains its composition unaltered in the presence of acid of any description, but breaks up at once into phenol and salicylic acid in an alkaline medium. So long, therefore,

as it remains in the stomach—providing always that the gastric contents are acid in reaction—it retains its original composition ; but on passing sufficiently far into the small intestine for the acidity to be more than neutralised by the pancreatic and other secretions, decomposition takes place, and the salicylic acid is absorbed and rapidly appears in the urine in the form of salicyluric acid. The presence of the latter is shewn by the production of a deep purple colour on adding to the urine a few drops of the liquor or tincture of the perchloride of iron. Since Ewald has shewn by direct experiment that the salol is not absorbed from the stomach into the alkaline blood and there split up, it follows that with acid gastric contents the appearance of salicyluric acid in the urine is absolute proof that some, at any rate, of the salol has passed into the intestine ; and the time which elapses before the reaction can be obtained will obviously depend largely upon the freedom of exit from the stomach into the intestine and the vigour of the movements of the former. It has accordingly been suggested that the measurement of this period may afford a means of estimating the motor power of the stomach wall in those cases in which the presence of pyloric obstruction can safely be excluded ; and Ewald maintains that the salicyluric acid reaction can in health be detected in the urine in from forty to seventy-five minutes after a gramme of salol has been taken by the mouth. Any delay beyond this time is said to shew with considerable certainty the existence of deficient gastric motor power.

This method of performing the test has, however, been a good deal called in question. In the first place it is truly said that for complete accuracy the acidity of the gastric contents at the time of the experiment must be definitely ascertained ; but the usual ingestion of the salol two hours after the principal meal of the day is generally taken to ensure the presence of this acidity. Secondly, it is urged that the point at which the salol first meets with an alkaline reaction is a very variable one, and depends upon the amount of the original acidity, the freedom of the alkaline secretions, the quantity of chyme in the duodenum,

etc. ; and a few observations made upon myself point to the possibility of considerable variations in these matters. Thus, I have four times found the salicyluric acid reaction to be strongly marked in half an hour ; whilst once it was faintly present in fifteen, and twice in twenty minutes. In the fifteen-minute observation the salol was taken in a tumblerful of water, the gastric contents being thereby rendered unusually fluid ; whilst in the other two the dose was taken after a light tea—a meal which might easily correspond with only a very moderately acid gastric reaction ; and I think that the explanation of the very marked reduction in the time assigned by Ewald for the occurrence of the reaction must be sought for in these circumstances rather than in any extreme vigour of the stomach movements. Thirdly, it appears to be an objection to placing very great reliance on this test that the time dealt with is so short as seventy-five minutes at the outside—a period which must necessarily allow much influence to accidental circumstances.

Huber has strongly advocated the measurement of the time required for the complete disappearance of the reaction from the urine, rather than that which elapses before it can first be detected ; and his contention of the greater accuracy of this method is on the whole supported by Ewald. It is maintained that numerous observations have shewn—though not quite unanimously—that in health, with a gramme dose of salol, this period should not exceed twenty-four hours, and is often much less ; whilst beyond thirty hours a material delay in the passage onwards of the gastric contents may safely be inferred. The dose is, as before, invariably given two hours after the chief meal of the day.

This method I have myself used in the cases quoted below ; and it is of course obvious that in those instances in which a prolongation of the period occurs, the observations cannot be called in question. The fact of delay is there, whatever be its explanation. I have always felt, however, that although a large number of observations giving fairly uniform results may reasonably be accepted as reliable, yet in any individual case an

observation which gives a *normal* result, when made in the above manner, takes too much for granted for scientific work. Two points are, I think, somewhat unwarrantably assumed, considering the nature of the cases in which the test is ordinarily used—namely, that the gastric contents are acid in reaction at the time when the dose is administered, and that they remain so throughout the period during which the salol is retained in the stomach.

The first point is, as already mentioned, generally taken as ensured by beginning the experiment two hours after the principal meal of the day, undoubtedly with good reason in the great majority of cases. It must however be remembered that in cases of gastric disorder an actually alkaline reaction of the stomach contents, though rare, is not altogether unknown; and Ewald himself admits that for accurate work this point ought first to be proved by the passage of the stomach tube and the examination of the reaction of the contents. This measure is of course in practice out of the question, but I may point out that almost equally definite information may be obtained by making a preliminary use of the former method of performing the salol test; for the presence of alkaline gastric contents must necessarily cause the immediate decomposition of the salol, absorption of the salicylic acid from the stomach itself, and therefore the rapid appearance—almost certainly within fifteen minutes—of the salicyluric acid reaction in the urine. That this is really so I have twice proved in my own case by rendering the draught alkaline in reaction before taking it. In each case the salicyluric acid reaction was strongly marked in the urine in fifteen minutes, and would doubtless have been still more so had not the alkaline reaction of the draught been speedily neutralised by the acid gastric contents. A more prolonged *absence* of the reaction may therefore be taken as pretty certainly indicating the presence of an acid reaction in the stomach at the commencement of the experiment.

In performing this latter test it is worth while to draw attention to the absolute necessity of emptying the bladder imme-

diately before taking the salol ; otherwise, the very small amount of salicyluric acid which is at first excreted will altogether fail of detection.

The assumption that the gastric contents remain acid as long as the salol occupies the stomach is, I think, under the above circumstances, a more doubtful matter ; but becomes justifiable with the precaution already mentioned, if the dose be given after the *last*—not necessarily the *chief*—meal of the day. In this way, the stomach has a clear period of eight or ten hours in which to empty itself, without the introduction of any fallacy due to the ingestion of another meal, and, as is known by experiment, does in health actually empty itself very completely in this time ; while, if it fails to do so from deficiency of motor power, the contents are then certain to be too strongly acid to be affected by any fresh food ingested. On the other hand, if, as is usual in hospitals, the chief meal of the day be served out at 1 p.m., the salol taken at 3 p.m., and a further farinaceous and probably alkaline meal at 3.45 or 4, an element of doubt is certainly introduced in those cases in which the acidity of the gastric contents is greatly diminished. As before, the point at which the intestinal contents first become alkaline is a variable one ; but, in this case, we are dealing with hours instead of minutes, and this source of inaccuracy becomes of but little importance.

With these precautions the test may, I think, afford very reliable information. I should still, however, be averse from attempting to lay down any limit of time, prolongation beyond which shall be looked upon as pathological ; for, as a few of the results quoted below appear to shew, no such definite limit can be assigned. As before, the important point to recognise is that with a vigorously-acting stomach the reaction will often disappear in 12 or 15 hours, and that the greater the prolongation beyond this time, the less, other things being equal, will be the vigour of the gastric movements.

With the object of testing the accuracy of the period assigned by Huber and Ewald for the disappearance of the reaction

under ordinary conditions, and especially for the sake of familiarising myself with the results to be expected from the test, I have at various times administered salol in the following thirty cases. I did not observe the time at which the reaction first appeared, and the dose was given two hours after the mid-day meal. I cannot therefore claim that any individual observation in which a normal result was obtained is certainly accurate, though I think that the uniformity of many of the results is a *prima facie* reason in favour of their reliability. At the same time, in most cases I noted carefully the condition of the bowels at the time of and throughout the experiment, with the object of ascertaining whether or no the results were thereby affected. The plain figures in the column referring to this matter indicate the number of motions passed during the continuance of the experiment. Where complete constipation was present during this period, the figure "0" is followed by a statement in parentheses of the number of hours which elapsed between the time of the last motion and that at which the salicyluric acid reaction failed. The dose was in each case 15 grains. The urine was first tested twelve hours after its administration and, as far as possible, at intervals of three hours until the end of the reaction. The patients suffering from acute diseases were in all cases convalescent at the time of the observation.

The following are the results obtained :—

	<i>Diagnosis.</i>	<i>Reaction last present. (HOURS.)</i>	<i>Reaction first present. (HOURS.)</i>	<i>Bowels open.</i>
1	Aortic disease ...	—	12	0 (42)
2	Pneumonia ...	—	15	3
3	Lead colic ...	—	15	4
4	Pneumonia ...	12	15	3
5	Aortic disease ...	12	15	3
6	Typhlitis ...	12	15	3
7	Mitral disease ...	12	15	1
8	Hemiplegia ...	12	15	3
9	Mitral disease and Bronchitis ...	12	15	1
10	{ Aortic disease and Bronchitis ...	{ 12	{ 15	{ 2
	" " ...	15	18	0 (61)
11	Phthisis ...	15	18	0 (37)
12	Lead colic... ...	15	18	2
13	Pneumonia ...	15	18	1

	<i>Diagnosis.</i>	<i>Reaction last present. (HOURS.)</i>	<i>Reaction first present. (HOURS.)</i>	<i>Bowels open.</i>
14	Normal case ...	16	18	
15	Pneumonia ...	—	20	0
16	{ Vomiting ...	{ 18	{ 21	{ 0 (52)
	{ " ...	{ 18	{ 21	{ 2
17	Anæmia and gastric catarrh ...	18	21	0 (33)
18	Cardiac disease ...	18	21	0 (55)
19	Pleuritic effusion ...	18	21	2
20	Sciatica ...	18	23	2
21	Bronchitis ...	21	24	2
22	Gastric catarrh ...	21	24	2
23	Phthisis ...	24	27	1
24	Sciatica ...	27	30	3
25	Mitral disease ...	29	33	2
26	Pneumonia ...	30	35	2
27	Dilated stomach ...	33	36	1
28	Aortic disease ...	33	36	0 (45)
29	Paraplegia ...	47	50	1
30	Dilated stomach ...	49	55	2

Of these cases all, with five exceptions, were apparently free from any gastric disorder whatever. Of the five exceptions, two (Nos. 27 and 30) were cases of undoubted dilatation of the stomach; one (No. 16), was a case of persistent vomiting, with uniformly acid gastric contents, according to several observations, and no sign of dilatation; and the remaining two (Nos. 17 and 22) were diagnosed as cases of "gastric catarrh," no examination being made of the acidity of the contents of the stomach.

It will be noted that in 22 out of the 30 cases the reaction failed before the expiration of twenty-four hours; and that in two more—cases of phthisis and sciatica—it disappeared between twenty-four and thirty hours after the administration of the salol. The contention, therefore, that failure should normally occur in thirty hours at most is so far supported, although the possibility of the gastric contents having become alkaline at some period of the experiment cannot in any individual case be excluded.

On the other hand, in five cases the period of thirty hours was definitely exceeded, whilst a sixth (No. 25) is doubtful, the reaction having been present at the end of twenty-nine hours and failing in thirty-three, but no intermediate examination having been made. Two of these five cases were well-marked

examples of gastric dilatation, in which the reaction persisted for over thirty-three and forty-nine hours respectively; but it must be noted that pyloric obstruction was proved by *post mortem* examination to exist in one of these cases, and was, in all probability, present in the other, and therefore that the question of deficient motor power of the stomach wall does not come into discussion.

It is distinctly worth noting that the remaining three cases in which the reaction was prolonged were cases of convalescent pneumonia, aortic disease, and paraplegia respectively, the prolongation in the last case being very marked. The question arises as to what significance this prolongation has in these cases. If the test is to be absolutely relied on, we must assume that the motor power of the stomach was distinctly deficient in all three, although in none was there any sign or symptom of gastric disorder, and one remained, to my knowledge, free from any trouble of the sort for at least a year. There is, as far as I know, no reason to deny the relative deficiency of motor power in these cases; the observations only shew that such deficiency is not necessarily of pathological significance.

A study of the fourth of the above columns shews that no relation whatever exists between the condition of the bowels, as regards constipation or diarrhoea, and the duration of the reaction. This is especially well shewn in cases 10 and 16, in each of which two separate observations were made—one in which there were in each case two actions of the bowels during the continuance of the experiment, and one in which the last motion had occurred sixty-one and fifty-two hours respectively before the reaction failed. In the first case the constipation corresponded with a prolongation of the reaction for at most a period of three hours; in the second the results of the two observations were identical.

REPORTS OF CASES.

THREE CASES OF HYSTEROPEXY.

BY J. FURNEAUX JORDAN, M.B., F.R.C.S.,
SURGEON TO THE BIRMINGHAM AND MIDLAND HOSPITAL
FOR WOMEN.

THE following cases illustrate the good effect of operation in obstinate cases of uterine prolapse :—

1. E. R., age 35 ; married 19 years ; 11 children ; last child born in February 1893. First seen in November 1893. Had then had a prolapse of the uterus for over five years, the uterus coming partially outside the vulva whenever the patient assumed the upright position. Her menstruation was regular, but very excessive. She had tried various kinds of pessaries, but none of them would keep up the uterus with comfort. Operation was performed on December 5th at the Women's Hospital, details of which will be given below. The recovery was uninterrupted. The patient was seen again last week, and said that she no longer felt any trouble from the uterus. On examination it was found to be in good position.

2. M. H., of Aston, age 24 ; married three years ; two children. Had been under the care of Dr. Robson for complete prolapse of the uterus for fifteen months, during which various kinds of pessaries had been tried and failed. She was first seen in February of this year and willingly consented to undergo any operation that might relieve her condition. Operation was performed on March 7th at her home, and was followed by a rapid recovery. The patient, a butcher's wife, now spends the greater part of the day on foot in the shop ; yet feels no trouble from her womb, and is immensely grateful for what has been done.

3. H. B., of Ledbury, was sent to me in April last by Dr. Harrison, for an opinion as to the possibility of doing any-

thing for her prolapse. Age 43, unmarried; had been a washer-woman for years, and had gradually contracted a prolapse which was a source of great discomfort to her, especially so, since in other respects she was a strong healthy countrywoman. On April 5th hysteropexy was performed, and so well did she stand the operation that she expressed herself as "perfectly well" the next day. She too is doing her daily work in comfort.

I have thought it worth while to report these cases, since to my mind the operation of hysteropexy affords undoubted relief in a large class of cases, which, without it, goes on suffering year after year. I should unhesitatingly recommend it in cases of prolapse in young women, and in women who have to work hard for their living; and especially in the case of a young woman, who otherwise is compelled to wear a pessary for the rest of her life, with all its attendant discomforts, I consider that the operation is more than justifiable. There is of course the question as to whether the relief will be permanent, but I do not see any reason why it should not be so.

The operation is not a difficult one. After making a two inch incision through the abdominal wall in the middle line above the pubes, the uterus is pulled up into the wound by volsellum forceps. For this easy method of pulling it up, we are indebted to Mr. J. W. Taylor. Three or four sutures of silkworm gut are then passed through the anterior wall of the uterus, and the ends on each side are passed through the parietal peritoneum and the sheath of the rectus muscle. They are then tied firmly and left *in situ*. The uterus is thus anchored firmly, not merely to the peritoneum, but to the muscular wall by buried sutures. The upper end of the wound is closed and also the skin edges in the lower end are brought together by superficial sutures.

In my three cases, the appendages were healthy and were left alone; thus there has been no mutilation, and there is no reason why the patient should not in future bear children. I shall be interested in seeing if the relief is permanent, but since the sutures are left in, fastening the uterus to the muscular wall, and the surface of adhesion is fairly extensive, I do not anticipate any recurrence of the prolapse.

CASES OCCURRING IN GENERAL PRACTICE.

BY E. N. NASON, M.B.

A. B., age 47, while wheeling a barrow along a plank strained his right hand in trying to save the barrow from being upset. According to his own account his hand almost immediately afterwards closed, and he was unable to open it. He was treated by the surgeon to the Colliery where he met with his accident, but the hand remained closed for six months. During this time he was receiving accident pay from the sick-club, and a good deal of sympathy from his neighbours. After six months (his sick pay having been reduced) he came to me asking to have his hand amputated. The hand was then firmly closed with the thumb lying between the first and second fingers. The nails, which were very long, were pressing deeply into the skin of the palm, and from the hand maggots were crawling. The stench was overpowering. After soaking the hand in carbolic lotion I took the man unawares and by a sudden movement partially opened the hand. In a week, by forcible extension, the hand was completely opened and very gradually full movement was restored. The deformity has not recurred.

Sophia W., age 7, was seized while at school with vomiting and giddiness. The mother states that after this a lump appeared in the right groin, and the child suffered from vomiting and purging, together with "convulsed fits" for a fortnight. She was treated by a medical man for "inflammation of the bowels." A month later the belly began to swell rapidly, and in fourteen days was very greatly distended. At this stage she was brought under my care. I found the abdomen distended with fluid, great emaciation, and a high temperature. The case looked like one of advanced tubercular peritonitis. The child was sent home, and immediately after arriving there (some three miles in the country) the abdomen gave way at the umbilicus, and a very large quantity of ill-smelling pus was discharged. Pus continued to discharge from this opening for about a month,

during which time some thickening could be felt in the hypogastric region. After this the small opening closed, the thickening entirely disappeared, and the child rapidly and completely recovered. It seems probable that this case was either one of perityphlitis with a large retro-peritoneal abscess, or else a suppurating cyst of the urachus. In either case a spontaneous cure is interesting.

C. E., age 51, married (eight children), was seized one night in October with violent abdominal pain of a colicky nature. She was at the time recovering from a bad attack of influenza. She was a strong, stout, healthy-looking woman, and had had no previous illness, except occasional dyspeptic attacks and an obstinate condition of bowels. She was at once relieved by bismuth and chlorodyne. A month later she had a similar attack, after which the abdomen was examined, and an ill-defined but distinct lump discovered in the region of the splenic flexure and descending colon. It was thought that this was probably due to faecal accumulation. Enemata were ordered, and brought away considerable quantities of scybala; but the swelling, though lessened, did not disappear. A week or so later the swelling began definitely to enlarge and become tender, and the patient to shew signs of constitutional disturbance, with evening rise of temperature. The swelling steadily enlarged, and becoming adherent to the abdominal wall a little to the left of the umbilicus, was incised under chloroform, and a large quantity of foetid pus evacuated. The abscess cavity, which extended up behind the stomach and down towards the sigmoid flexure, was washed out and drained. The cavity closed in about three weeks, and the patient made a rapid recovery and was soon able to return to her usual duties. There was, however, more thickening in the site of the abscess than seemed natural, and this did not appreciably diminish during the next three or four weeks. Some six weeks later, while at the seaside, patient had another attack of abdominal pain, in consequence of which she returned home. The swelling was again rapidly enlarging, and shewed evidence of fluctuation,

It gave way spontaneously near the original incision and discharged foetid pus, giving great relief and again healing up. A fortnight later, however, the swelling rapidly enlarged again, and, on being incised, a mass of soft growth was found. This proved to be a columnar-celled carcinoma, with abundant but rapidly degenerating stroma. This growth gradually extended along the peritoneal surface of the anterior abdominal wall, but did not fungate. In November faecal matter was found for a few days only in the discharges, which were never excessive. There was no sign of intestinal obstruction, and no melæna or hæmatemesis, and in fact, except for an occasional attack of sickness, there were no symptoms beyond progressive asthenia. The case terminated fatally at the end of December.

PERISCOPE.

DISEASES OF THE GENITO-URINARY ORGANS.

BY GILBERT BARLING, B.S., F.R.C.S.

Carcinoma of the Female Urethra, treated by supra-pubic cystotomy à deux temps, excision of the urethra and vesical neck and closure below of the excised bladder.—James H. Dunn, M.D. (*Annals of Surgery*, April, 1894.)—A female, aged 50, had excision of part of the urethra performed for carcinoma in June, 1892. Recurrence took place in ten months, and when seen by Dr. Dunn at the end of July, 1893, the following condition was found—"The anterior vulvar commissure was occupied by a fungoid growth involving the clitoris, nymphæ, urethra and anterior vaginal wall, back to the base of the bladder. The urethra was completely involved and catheterisation was very difficult. The superficial inguinal glands on both sides were greatly infiltrated." First stage of operation:—Through a median incision the bladder was reached, its walls were anchored

to the skin by stitches, and the wound was stuffed with gauze. At the same time the glands were excised. Five days later the bladder was opened and a small area stitched to the edge of the skin. The growth was removed by an incision through the internal border of each major labium down to the pubic ramus, everything being cleared away from the bones for two inches downward, thence back to one inch behind the internal meatus. The anterior bladder wall was carefully coapted to the posterior by silkworm gut sutures, and the vagina and labia so approximated as to nearly close in the resected area. No urinary leakage took place here, and a good recovery followed. A short stem was worn in the supra-pubic opening, and by using the catheter four or five times in the twenty-four hours the patient was free from annoyance by the urine. She remained well as late as January 1, 1894.

Ossifying Enchondroma of Pelvis obstructing Urethra.—

Dr. Dunn records another case of permanent supra-pubic opening into the bladder. The patient, a male, was seen first of all in 1885 when he was 69, and suffered from retention of urine. Rectal palpation then discovered a mass which from its physical character was regarded as a growth of the prostate. Catheter life was continuous after this, but at the end of six years the route was blocked by a large, irregular, very hard tumour which nearly filled the pelvis and bulged out the perinæum, whilst masses projected from the pelvis into the abdomen and into the thigh through the obturator foramen. Locomotion was impossible, and there was cystitis and peri-urethral abscess.

When opening the bladder it was impossible to avoid the peritoneum, and the membrane was twice incised, but before opening the organ the parietal peritoneum was carefully stitched to that of the bladder about an inch from the proposed opening. Some urine was then removed by aspiration, and when tension was thus lessened the wall of the bladder was drawn out "like the short snout of a tea-pot" and stitched to the skin at the upper part of the wound, the remainder being sutured. The bladder was drained by a large catheter which was emptied with

a syringe as is the drainage tube after an abdominal section, and the wound thus kept uncontaminated readily healed. The patient died of pneumonia ten months later. The tumour appears to have started on the inner surface of the left ischium.

The author also relates a case of *Persistent Hæmaturia and Cystitis* due to a bony sequestrum in the bladder, which was removed after an exploratory supra-pubic operation. A male aged 22, with a very good family history, six months before coming under observation began to be annoyed by frequent micturition night and day. On two occasions he had severe attacks of pain in the left side as well as in the bladder. A month after his trouble commenced he began to pass blood, and the hæmaturia persisted though it was never great; more blood appeared at the end of micturition than earlier, and at times it only appeared then. The urine was acid, contained blood, pus, and mucus, and was usually offensive. The acme of pain was after urination. Sounding revealed no foreign body, but produced more bleeding. The conditions present and the history suggested vesical papilloma, but even under anæsthesia blood was present in such quantity as to prevent cystoscopic examination. When he had been watched for three weeks the patient developed typhoid fever, and during this illness the hæmaturia was much increased. After recovery supra-pubic cystotomy was undertaken as an exploratory measure, and owing to the fact that, even under deep anæsthesia, the detrusor of the bladder could not be kept quiet, it was difficult to open the bladder without damaging the peritoneum, though eventually this was managed. When the organ was opened a bony sequestrum three-quarters of an inch long, half an inch wide, and one-eighth of an inch thick was found, and its source was discovered to be the right pubic bone. The explanation of its non-diagnosing by the sound was probably that it was thickly coated with mucus and blood.

At the International Medical Congress in Rome Mr. Reginald Harrison read a short paper on "Perinæal Lithotrity." He states that he has a record of over 400 operations for stone in

the male bladder, and that he is pledged to no particular method of operating, but relates what appears to be the most suitable for the individual case. He mentions that he has operated on 56 male children by lateral lithotomy, and that of this series only one patient died, the death being due to pyelitis some weeks after operation. Such an account as this should make the advocates of the supra-pubic operation in children reconsider their judgment.

The object of his paper, however, is to briefly describe a method of operating which has been found particularly applicable to some exceptional cases, and where the results obtained from it contributed materially to the small mortality of a series of operations which embraces both lithotomy as well as lithotrity.

The name of perinæal lithotrity was given in 1862, by Professor Dolbeau, of Paris, to an operation completed in one sitting by which the membranous portion of the urethra is opened, the prostate and neck of the bladder dilated, instead of being cut, and a large stone crushed, and the fragments immediately evacuated.

Mr. Harrison published his first communication on perinæal lithotrity some years ago, and had practised it in fourteen instances in male adults. In every example the operation was successful, recovery being rapid and complete, and recurrence of stone has not occurred in any case.

Mr. Harrison says—"The chief features in connection with the operation I am about to describe are: (1) The mode of obtaining access to the interior of the bladder from the perinæum; and (2) The mechanism connected with crushing and evacuating the stone.

"From a number of experiments I made on the dead subject as well as from the performance of median cystotomy on the living for various purposes, it seemed unnecessary to do more than to make an opening from the perinæum into the membranous urethra at the apex of the prostate, on a grooved staff passed along the urethra, sufficient to admit the introduction of

Wheelhouse's small tapering gorget, and subsequently the index finger into the bladder as for digital exploration; or, as is done in the boutonnière or Cock's operation—more than this is not necessary. In Dolbeau's operation direct access to the bladder was obtained by this route, aided by the use of an expanding instrument by means of which the prostatic urethra and neck of the bladder were dilated. It seemed to me, from some experiments made on the cadaver, that the latter means of dilatation was not only unnecessary, but was open to the objection that unless used with the greatest care, it was possible to inflict serious damage.

"Further, I succeeded in demonstrating that by means of crushing forceps, shaped somewhat like the blades of a lithotrite, and not exceeding by actual measurement in circumference that of an ordinary index finger, sufficient power might be provided to crush and assist in evacuating any stone that could be fairly seized in this way. These forceps are provided with a cutting rib within the blades, and the more powerful instruments, as you will see from the specimens I am shewing you, are fitted with a moveable screw on the handle. The fragments may subsequently be withdrawn by means of aspirator catheters passed through the wound, or even by the forceps. If care is taken to make the perinæal wound correspond in size with the evacuating catheters, which should be of about the size of an ordinary index finger, there is no difficulty in keeping the bladder distended during the necessary manipulations.

"The chief points in favour of this operation are these:—
 (1) It enables the operator to crush and evacuate large stones in a short space of time. (2) It is attended with a very small risk to life as compared with other operations where any cutting is done, such as lateral or supra-pubic lithotomy, and is well adapted to old and feeble subjects. In his recent address, Mr. Swinford Edwards* shews that the latter operation for large stones has a mortality somewhere about 50 per cent. (3) It permits the operator to wash out the bladder, and any pouches

* *Medical Press and Circular*, October 12, 1892.

connected with it, more effectually than by the urethra, as the route is shorter and the evacuating catheters employed of much larger calibre. (4) The surgeon can usually ascertain, either by exploration with the finger, or by the introduction of forceps into the bladder, that the viscus is cleared of all *débris*. (5) It enables the surgeon to deal with certain forms of prostatic outgrowth and obstruction complicated with atony of the bladder in such a way as to secure not only the removal of the stone, but the restoration of the function of micturition. (6) By the subsequent introduction and temporary retention of a soft rubber drainage-tube, states of cystitis due to the retention of urine in pouches and depressions in the bladder wall are either entirely cured, or are permanently improved. To lock up unhealthy ammoniacal urine in a bladder that cannot properly empty itself after a lithotrity, is to court the formation or recurrence of a phosphatic stone. Hence it is well suited to some cases of recurrent calculus. I have never known the wound to remain unhealed, except in those instances where, for some reason or other, it has been desired to construct a low-level urethra, as in an instance I have recorded elsewhere.

"It is well adapted for some cases of stone in the bladder complicated with stricture in the deep urethra, as it enables the surgeon to deal with both at the same time. Nor does it expose the patient to the risk which may be attendant where lithotrity is performed with a weakened or permanently damaged urethra."

A Case of Lithotrity fatal from Rupture of the Bladder.—(*Edin. Med. Journal*, January, 1894.) Surgeon-Lieutenant Melville.—This case is worth quoting in full as it is recorded. "A Belooch, aged 50, was examined on the 21st of June, and the presence of a vesical stone diagnosed. The history I obtained was that nearly five months previously he had been in the hospital, and on February 10th lateral lithotomy was performed and a stone removed. The hospital assistant had not been present at the operation or afterwards, and could not supply any particulars. The symptoms of stone had reappeared

some weeks after the operation, and had continued up to the time of admission. He had also, it appeared, suffered from cystitis. It was decided to perform lithotrity, and the patient returned on the 26th of June from his village, where he had gone to make arrangements for his stay in hospital. The urine was alkaline, but did not appear to be septic. The operation took place on June 28th. All the usual precautions were taken, and the stone was crushed without difficulty. A No. 16 silver catheter was passed, and the aspirating apparatus attached. On suction being first employed, a large quantity of the particles of the crushed stone passed over and fell into the receiver. The indiarubber ball was pressed a second time, but on relaxing it the bladder wall was felt immediately to impinge upon the catheter. More of the boric lotion was accordingly added gently to the apparatus. This was stopped, however, when it was noticed that the addition of nearly three-quarters of a pint failed to fill the apparatus, and also that there was an absence of the usual regurgitation of the fluid with respiratory movement. At the same time the patient began to shew some signs of collapse, and attempted to vomit. On endeavouring to evacuate the bladder with the aspirating apparatus, no fluid was withdrawn, and the exhauster was accordingly removed. Only a few drops of fluid came by the catheter. The operation was at once suspended. On making further enquiry into the patient's history, it was elicited from the compounder, who had been present at the operation of lithotomy, that on that occasion the sound had slipped, and the rectum had been wounded by the knife. A recto-vesical fistula had existed for some time, and I was then informed that nearly up to the time of operation the patient had been passing urine occasionally by the rectum and some fæcal matter per urethram.

"Treatment: The patient was at once given morphia ($\frac{1}{2}$ gr.) hypodermically, and hot opium fomentations were applied to his abdomen. Later, opium (1 gr.) thrice daily was administered, and a gum elastic catheter left in the bladder to draw off any urine collecting there. In the evening a small quantity

of urine escaped in this way. The patient had a good deal of abdominal pain, and could not retain even a tablespoonful of milk or any brandy. On giving a small quantity of cocaine hydrochlorate a few minutes previously, some milk and white of egg was retained. His collapse and weakness were considerable, and about 4 p.m. he developed all the symptoms of acute general peritonitis, and died at 6 p.m. on the 29th of June. No *post mortem* examination was permitted, so that it could not be ascertained where the rupture had taken place. At no time was the mucous membrane of the bladder grasped between the blades of the lithotrite, and no force was employed during the entire course of the operation. I am inclined to think that the filling up of the bladder under the pressure of the evacuating apparatus had torn away some of the adhesions of the bladder to the rectum, and that the weakened and diseased organ was ruptured posteriorly from the site of the former fistula up into the peritoneal area."

A Study of 404 Cases of Divulsion of Urethral Stricture; the results in 28 cases.—(*Journal of Cutaneous and Genito-Urinary Diseases*, October, 1893.) Dr. C. Scudder.—This is a most temperately worded article on the particular method of rupturing stricture introduced by Dr. Bigelow. In the instrument used there are two advantages claimed over Holt's, which is the favourite weapon in this country. They are that a fine guide is adapted to the instrument to make sure that it has found its way along the urethra into the bladder, and that the possible stretching only involves that portion of the urethra which is strictured, and not the whole length of it.

During a period of twelve years 504 cases of urethral stricture were operated on at the Massachusetts General Hospital—404 by Bigelow's divulsion method, 100 in other and various ways. These cases were under the care of six different surgeons; nearly all the operations were "emergencies," done for tight stricture and retention; no opportunity was afforded of making the urinary passages "aseptic;" and the instruments, though properly cleansed, were not sterilized. Most of the patients

were in poor physical condition, and of the 404 operated on by divulsion, 8 died—a mortality of about 1·9 per cent. A brief account is given of the cases which ended fatally, and an analysis at the end of the paper is presented of 28 cases. From this analysis it appears that rigors followed in 8 of the 28 cases, the highest recorded temperature being 105°. The average stay in hospital after operation was about twelve days, the time ranging from as few as five days to as many as thirty.

Dr. Scudder arrives at the following conclusions :—

“1. The Bigelow divulsor is a safe, simple, and efficient instrument.

“2. The mortality in this series of cases is about 1·9 per cent. Considering the character of the cases, the physical condition of the patients, the most impermeable strictures (which had existed in many cases for years), the fact that the cases were subjected to the operation of divulsion as a routine operation—*i.e.*, were not selected cases; considering these facts, this mortality is low, and should lead one to suppose that in properly selected cases the mortality would be still lower.

“3. After divulsion, the amount of constitutional disturbance was comparatively slight even in these cases. The urgency of the symptoms was so great as to preclude preliminary preparations. With recent methods of urinary asepsis and urethral antiseptics, even less constitutional disturbance should follow.

“4. Taking all this into consideration, the permanence of the results in this particular series seems fairly satisfactory.

“5. In many instances divulsion probably increases the cicatricial tissue surrounding the urethra, because the rupture sometimes occurs in stricture tissue and extends into healthy tissue.

“6. The operation with the Bigelow divulsor is not regarded by those familiar with it as “violence applied to the urethra in a rude fashion,” but a method at once accurate, easy, ready, safe, and almost bloodless.

“7. There is a distinct and rational place for divulsion as a surgical procedure.

“In firm tough stricture divulsion is contra-indicated.

"There are soft strictures, but firm enough to cause retention of urine, which yield to very little force, and it is this class of stricture for which divulsion, it seems to me, is pre-eminently the operation.

"The penile stricture is almost always firm, and composed of more dense cicatricial tissue than is the deeper urethral stricture, and in the anterior penile urethra internal urethrotomy seems to be the better operation.

"No one procedure is the operation in all cases of stricture.

"A careful study of the character and seat of the stricture should determine the exact operation to be done.

"Divulsion with the Bigelow divulsor should be reserved; it seems to me, for soft deep strictures unaccompanied by much cicatricial tissue."

Gangrene of the Scrotum.—(*Journal of Cutaneous and Genito-urinary Diseases*, February 1894.) Charles W. Allen, M.D.—A man, aged 34, alcoholic in habits, suffering from a granulating sore in the groin the result of a Bubo three months before, was seized with a dull pain in the scrotum after a severe exertion. The parts swelled, the pain increased, and on the fifth day a black streak appeared upon the part, and this gradually extended. On the eighth day the scrotum was as large as a good-sized cocoa-nut, and nearly all the skin covering it was gangrenous and separating from the living tissue. The fœtor was horrible, but the constitutional disturbance was very moderate. The urine was healthy and the urethra also. The dead tissues separated exposing completely both testes, and on the left side the tunics of the testicle were involved in the gangrene. At the end of a month, when the granulating process was well established, the edges of the remnants of the scrotum were separated and approximated somewhat, and in six weeks the patient was well; the testicles then, though slightly tender, were freely movable under the scrotal tissues. The gangrenous process was regarded by the author as due to infection via the still open bubonic sore. A résumé of similar cases is given.

Syphilitic Infection at the Barber's.—Dr. William Judkins

records in the *Journal of Cutaneous and Genito-Urinary Diseases*, December, 1893, an example of this accident. The patient remembered that on a certain day in November, 1892, whilst having his hair cut with "clippers," a speedy substitute for scissors, he was "jobbed" in the head by the barber. When seen in December a sore existed at the point of puncture, which is described as an abrasion with edges that might be termed sloping, with some thickening and redness of the surrounding tissues. Events subsequently shewed this to be a syphilitic infection. Another similar case is quoted in which the source of infection was a papular eruption on the hands of the professor of the tonsorial art.

Double Nephro-lithotomy.—(*Journal of Cutaneous and Genito-Urinary Diseases*, December, 1893.) Bell.—The following case is recorded:—A male, aged 36, was admitted to hospital February 2nd, 1892, with right pyo-nephrosis and stricture of the urethra. The latter had twice previously been treated, and was not tight. The kidney symptoms had been in existence for about a year, and consisted in attacks of severe pain with more or less continuous discomfort, and a tumour which was not constantly present. On admission, the patient was very ill, with rapid pulse, septic temperature, constant nausea, and constipation. A tumour about the size of a foetal head, but varying in extent, was fixed in the right loin, and the urine contained a large quantity of pus and albumen. The urethral stricture was first treated by combined internal and external urethrotomy, and a fortnight later a branched calculus weighing 400 grains, was removed from the kidney. Six weeks later the wound was healed, and the patient felt well and free from pain; but there was still some pus in the urine. Six months afterwards the patient returned, saying that he had not been able to resume his work because of pain and weakness in the left loin; and there was a history of several attacks of left renal colic. The left kidney was found to be enlarged and tender, the urine was scanty (20 oz.) and contained much pus, whilst the temperature ranged from 99° to 101°. Incision let out some ounces of pus

and several calculi and fragments. The patient did not rally well, remaining weak, with a rapid pulse and a tendency to vomit. He perspired freely but passed no urine, nor did any escape by the wound; in fact, there was complete suppression for seventy hours. A small quantity was then passed, and three days later the amount excreted had increased to 35 oz in twenty-four hours. The patient then steadily recovered, but has a sinus in the loin from which no urine escapes, and which is probably due to some fragments of stone in the peri-nephric tissues.

The author refers to four other similar cases, all he could find recorded. Two of the patients died and two recovered, though one of them had a fistula in the left loin.

REPORTS OF SOCIETIES.

KIDDERMINSTER MEDICAL SOCIETY.

Meeting held 29th June, 1894, Mr. S. STRETTON in the chair.

Mr. J. L. Stretton shewed—

1. A gum elastic catheter (No. 6) which, after being easily passed through a stricture, was so tightly gripped that considerable difficulty was experienced in withdrawing it. After removal it was found to be nearly severed just above the point at which it had been held. The catheter had never been used before.

2. A female child, aged $2\frac{1}{2}$ years, who had had discharge from her ears since birth. Two days before she was seen, the mother noticed a hard substance at the orifice of the right ear. Mr. Stretton removed this, which was found to be a piece of necrosed bone about the size of a threepenny-piece; and two smaller pieces were removed by syringing. The meatus was full of granulation tissue, and a probe touched bare bone posteriorly. There was a large perforation of the left tympanum,

The child had not exhibited any symptoms to indicate mischief capable of producing such destructive changes.

3. A male patient, 15 years of age, who was admitted suffering from extensive glandular enlargements along the anterior borders of the sterno-mastoid muscles. There was a history of phthisis; and as treatment by arsenic and thyroid had failed, the glands were removed, a large dissection being necessary. The wounds healed without difficulty, and no glands could now be discovered. The report of the section (which was exhibited) shewed it to be a rapidly-growing lympho-sarcoma. Mr. Stretton emphasised the importance of a very free removal in all such cases of glandular enlargement, as it is impossible to be certain of the pathological structure.

4. A female patient, aged 19, who, on admission, was freely desquamating on both feet, especially the soles. She stated that she had had no illness, no rash, and no sore throat. The urine was normal. The case was regarded as innocent, and kept in the general ward without any ill effect.

5. A boy with clavicle fractured at the outer third, of which, when first seen, the inner fragment was sticking upwards nearly through the skin, the outer pointing downwards. It was impossible to rectify the position by any of the ordinary methods of treatment, so the patient was admitted and kept flat on his back in bed. The fragments were then easily adjusted, and good union with little deformity followed. After being in bed for twelve days, he was able to be about.

Dr. Evans shewed a boy who had suffered from in-growing toe-nail, which had been treated by the excision of a semilunar portion of the flesh below the nail, extending from the root round to the front of the tip of the toe, and about one-eighth of an inch from the margin of the nail, the portion removed being about a-quarter of an inch in breadth at the skin surface. The edges of the wound thus made were brought together by two or three points of chromicised catgut sutures. There was rapid healing, and the side of the nail now projected well over the flesh of the toe.

2. Case of extreme hallux valgus of both feet, together with hammer-toes, treated by excision of heads of metatarsal bones of great toes, division of ligaments of other toes, and splint treatment, with excellent results.

Mr. Robinson shewed a specimen of a kidney, the seat of a medullary carcinoma, removed from a man aged 73. The illness began eighteen months ago with pain in the bladder, which came on when bending down, and was followed by discharge of bright clear blood per urethram. Under treatment the hæmorrhage diminished considerably, but eventually recurred, and shortly afterwards a tumour manifested itself in the region of the left kidney. The patient had no uræmic symptoms, and passed a fair amount of urine up to the time of his death. The case was interesting from the fact of its earlier symptoms pointing so much more to a diseased condition of the bladder than of the kidney.

Mr. W. Hodgson Moore read a paper on Anthrax.

REVIEWS.

AN AMERICAN TEXT-BOOK OF THE DISEASES OF CHILDREN.*

A BOOK whose list of authors includes many of the best-known names in the medical profession of America could scarcely fail to prove a valuable addition to the literature of the subject of which it treats. Nevertheless, although it contains many articles which we have read from beginning to end with great interest and pleasure, and which fully realise our highest expectations, we must confess that our general feeling is one of some disappointment.

* An American Text-Book of the Diseases of Children. By American Teachers. Edited by Louis Starr, M.D. Philadelphia: W. B. Saunders. London: F. J. Rebman.

We fully admit the difficulty of the task undertaken by anyone who writes or edits a work on this subject. The great question which has at the outset to be decided is whether the book is to constitute a text-book of all the diseases to which children are liable, or of those only whose characteristics differ distinctly according as they affect children or adults, together with such as are in an especial degree the diseases of childhood ; and if this question be decided in favour of the latter alternative, what are the diseases which come legitimately within its scope? Dr. Louis Starr has, however, chosen the first of these two alternatives ; and so thoroughly has the principle been carried out by his contributors, that some few diseases are included which never affect children at all. Thus, for example, even a short account of chronic interstitial nephritis will here be found, although the author of the article admits that only two cases are on record in which the disease has occurred in patients under 20 years of age, the ages of even these two patients being 18 and "between 11 and 20" respectively. This choice is much to be regretted, for it has resulted in the production of an enormous royal octavo volume, containing 1,148 pages, from which a large number of articles might well be transplanted as they stand, or with but the slightest alterations, into a text-book of general medicine. It is true that the largest share of attention is given to those disorders which especially affect children, and all peculiarities of disease as affecting these patients receive due notice ; but only to this extent can it be called a text-book of the diseases of children.

Another defect in the book which strikes us as a serious one is the almost complete omission of records of cases. This probably depends upon the fault of which we have already spoken, sufficient space evidently being not forthcoming. Here and there, indeed, a case or two is very briefly described, and, in reading the book, we have hailed these cases with pleasure and relief ; but they are few and far between. In a special work of this size, which must obviously appeal not to the medical student but to the qualified practitioner, the recital of cases is, we think, almost essential.

The above are the serious blots on the book ; but they are blots which may perhaps be remedied in the second edition, to which it is sure speedily to attain. We venture also to add a suggestion to the effect that the glazed paper used throughout its pages renders reading by a side-light—the ordinary and best light available—a somewhat trying matter for the eyes.

Coming to a few more detailed observations, we certainly find no lack of individual points to which high praise can be accorded. The book opens with a good introductory section on the general examination and management of children, including two special chapters of distinct value on Exercise and Massage, and Sea-air and Sea-bathing. After a short chapter devoted to the Injuries and Diseases of the New-born, the next section deals with the "Diathetic Diseases," tuberculosis and syphilis. Dr. Osler's account of the former includes both etiology and pathology, a knowledge of both of which might surely have been assumed on the part of the reader. The clinical portion is exhaustive and systematic, but on the whole disappointing, since it appears to us to be written too much in the style of the ordinary text-book ; whereas, from such an author, an original article embodying the results of his own observations would have been of the greatest value. The section on Acute Infectious Diseases is good, and may safely be consulted as applying to adults almost equally with children, though a fair amount of attention is given to the latter. The account of the treatment of diphtheria in Dr. Dillon Brown's article struck us as being especially good. This section concludes with articles on tracheotomy and intubation, in which we notice that Dr. Henry R. Wharton claims that better results are obtained by the latter method during the first two years of life, though after that time there is but little to choose between the two operations.

Dr. Lewis Smith contributes an excellent article on Rickets, and Dr. Geo. Roe Lockwood's account of Purpura is a good work of reference for adults and children alike ; but Dr. W. Perry Northrup, in treating of Scurvy, sets an example of the way in which a text-book of the diseases of children should be written,

by dealing with the disease exclusively as it affects those patients. His article is excellent.

The important subjects of Gastric and Intestinal disorder are dealt with in articles that are generally well worth reading. In the section on the Nervous System we may perhaps single out the large group of articles by Dr. Charles K. Mills as being of especial value—special mention being made of those on Idiocy and Imbecility, and Insanity in Children. The section on Lung Diseases is good, though perhaps not the best in the book; whilst that on the Circulatory System, occupying as it does only 23 pages, is, we think, quite inadequate to the importance of the subject. After dealing with the Diseases of the Genito-Urinary System and of the Skin, the book concludes with two short but useful articles on Diseases of the Ear and Eye, by Drs. B. Alexander Randall and G. E. De Schweinitz, respectively.

CLINICAL MEDICINE.*

THIS is an exceptionally good book. On a smaller and less elaborate scale, it attempts to do for clinical medicine what Von Jaksch's well-known book has done for the methods of clinical diagnosis; and the result is the production of a book which cannot fail to make better clinicians of those who study it. We wish that it could be widely read by students, but fear that it is somewhat too elaborate for many, who will probably be alarmed by its length and thoroughness; it will, however, be of immense help to those who are training for an honours degree.

Dr. Bury states that the arrangement of the matter contained in the book has cost him much thought and labour. This we can well understand, for the difficulties of the task must have been very great, and they have been completely overcome.

* *Clinical Medicine: a Manual for the Use of Students and Junior Practitioners.* By Judson S. Bury, M.D. Lond., F.R.C.P., Senior Assistant Physician to the Manchester Royal Infirmary. London: Charles Griffin and Co. 1894.

The book opens with three introductory chapters, the second and third of which—on “Symptoms for the most part Subjective in Character” and the “Examination of the Surface of the Body”—are, on the whole, the best it contains; all the important points which should be noted in the general and preliminary examination of a patient are here admirably summarised and brought together. The chapters which follow, on the examination of the various systems of the body, are written entirely from the clinical point of view; and although points here and there strike us as capable of improvement, there is really little to criticise. The numerous engravings with which the book is illustrated are excellently chosen, and will be found of great value.

We have read this book with more care and thoroughness than can usually be devoted to the review of a text-book, and we consider that we have been well repaid for the trouble.

TRANSACTIONS OF THE ROYAL ACADEMY OF MEDICINE IN IRELAND.*

IN this collection of forty-five papers will be found many that are of much interest; we can, however, indicate a few only of the most important.

Dr. Joseph O'Carroll contributes a valuable paper on Saturnine Encephalopathy, in which stress is laid upon the very varying aspects which the disease may assume, according as the motor, sensory, or mental symptoms become predominant. Four cases are published in detail which illustrate well these varieties.

An interesting case of Syringomyelia is reported by Drs. Coleman and O'Carroll; and another of pharyngeal spasm, which ended fatally with great suddenness, without any *post mortem* signs of disease, is described by Dr. H. T. Bewley. The papers on Subjective Ozæna by Dr. Knott, and the Diazo-Reaction by Dr. W. R. Dawson, also merit special mention.

* Transactions of the Royal Academy of Medicine in Ireland. Vol. xi, 1893. Dublin: Fannin and Co.

In the section of Surgery, Dr. C. B. Ball contributes an exhaustive paper on the subject of Cancer of the Rectum, in which an important feature is the careful description and criticism of the principal operative procedures; and Sir William Stokes records some satisfactory results obtained by the performance of Esthlander's Thoracoplastic Operation, and protests against the usual idea that this operation can only be looked upon in the light of a "forlorn hope."

In the section of Obstetrics, we may especially notice the Clinical Report of the Rotunda Lying-in Hospital for the three years extending from November, 1889, to October, 1892, where some valuable statistics are given.

Dr. D. J. Cunningham, however, contributes probably the most original and important paper in the book, in the shape of a record of original observations on the Delimitation of the Regions of the Abdomen, in which some new light is thrown upon the surface-marking of some of the abdominal viscera.

URIC ACID IN CAUSATION OF DISEASE.*

THIS work, the second edition of which we have recently received, is a collection in book form of a number of papers previously contributed by the author to various journals. The relation of uric acid to various morbid conditions is no doubt a very wide subject, but we cannot help thinking that the author has extended the list of diseases in which an excess of uric acid in the blood is the prominent feature if not the direct cause to its farthest limits, and has assigned to uric acid almost too large a part in the regions of pathology.

The first 76 pages, in which the formation and excretion of uric acid are discussed, contain some interesting observations, but much unnecessary repetition, and could be condensed with

* Uric Acid as a Factor in the Causation of Disease. By Alexander Haig, M.A., M.D. Oxon., F.R.C.P., Physician to the Metropolitan Hospital. Second edition. London: J. and A. Churchill. 1894.

advantage. The chief point insisted upon is that excess of uric acid in the blood is due to a previous diminished excretion and not to any increase in formation. The author considers that the relation of uric acid to urea formation is practically constant at about 1—35.

The chapters on Pulse Tension, Headache, Gout, and Mental Depression and Fatigue are interesting reading, and we think the conclusions arrived at are, on the whole, logical deductions from the facts brought forward. In some of the other chapters, in which other diseases, the causation of which the author attributes to an excess of uric acid in the blood, are discussed, the same cannot be said, and excursions are occasionally made into very speculative pathology.

Neither are we prepared to accept a statement made on page 31—viz., that "if people would be at the trouble to reduce their nitrogenous metabolism, . . . neither lime, lead, acids, nor *anything else* would be able to injure them,"—which implies that lead only acts as a poison by causing uric acid to be retained in the system.

The book is, however, well worth reading, and shews evidence of the most careful and laborious work, the results of which cannot help but throw much light on a difficult but most important subject.

SPRAINS: THEIR CONSEQUENCES AND TREATMENT.*

THIS excellent little book of 150 pages should be read by every practitioner of Surgery. Everything connected with the various injuries grouped together under the head of "Sprains" is described, and the proper treatment for each variety carefully discussed. Few cases bring more trouble to the Surgeon than sprains, unless he has a clear and accurate knowledge of their

* Sprains: their Consequences and Treatment. By C. W. Mansell Moullin, M.A., M.D., Oxon., F.R.C.S., Surgeon and Lecturer on Physiology at the London Hospital; late Hunterian Professor at the Royal College of Surgeons, etc. Second Edition. London: H. K. Lewis.

pathology and treatment. The author advises a much more active treatment than is usually to be found in the text books. From our personal experience of his methods, we can bear our testimony to their being sound and reliable. In regard to "lawn tennis leg" it seems difficult to believe that it is due to rupture of the deep veins of the calf. Rupture of some of the deep muscles of the calf, not the plantaris, appears to us to be a more reasonable explanation.

SAUNDERS' QUESTION COMPENDS.*

WE have so strong a dislike to text-books written in the form of question and answer that we find some difficulty in doing justice to these books. The fact that all three have attained to their second edition is proof that they are not altogether unappreciated; but we cannot help thinking, nevertheless, that they encourage a thoroughly unintelligent method of cramming, and shall be sorry to see them make way in England. The system is, perhaps, least objectionable when applied to such a subject as pharmacy, which necessarily appeals to the memory only; but even here we do not like it.

In dealing with nervous diseases, Dr. Shaw relapses into the ordinary style. We do not see much in his book that is out of the commonplace, but welcome the departure from the question and answer method adopted by his colleagues.

* *Essentials of Practice of Pharmacy.* By Lucius E. Sayre, Ph.G., Professor of Pharmacy and Materia Medica of the School of Pharmacy of the University of Kansas. Second edition revised.

Essentials of Diseases of Eye, Nose, and Throat. By Edward S. Jackson, A.M., M.D., Professor of Diseases of the Eye in the Philadelphia Polyclinic; and E. D. Gleason, S.B., M.D., Surgeon in charge of the Nose, Throat, and Ear Department of the Northern Dispensary, Philadelphia. Second edition, revised.

Essentials of Nervous Diseases and Insanity. By John C. Shaw, M.D., Clinical Professor of Diseases of the Mind and Nervous System, Long Island College Hospital Medical School. Second edition, revised. Philadelphia: W. B. Saunders. 1894.

YEAR BOOK OF THE SCIENTIFIC AND LEARNED
SOCIETIES OF GREAT BRITAIN AND IRELAND.*

WE have to notice the Eleventh Annual Issue of this book of reference. Full information will be found in it of all the Scientific Societies, including the officers of each, and a list of the principal papers read. No pains have been spared to ensure the accuracy of its contents.

PUBLISHERS' DEPARTMENT.

New Inventions, Drugs, etc.

MESSRS. BURROUGHS AND WELLCOME send us a very convenient *Pocket Cocaine Spray*, together with a set of Tabloids for solution immediately before use. The spray is small and can easily be carried in the pocket, and is especially intended for nasal use. The Tabloids enable the patient to secure greater accuracy of dosage than is usually arrived at in the application of this drug. The apparatus has the additional merit of cheapness. The same firm send us also a sample of *Emol Kelet*, a natural product, which, having been "purified and reduced to an impalpable texture," forms an agreeable and perfectly harmless dusting powder for use in the treatment of skin diseases.

MESSRS. KOND'S *Euonymised Cocoa* is a pleasant-tasting preparation which is believed to possess valuable properties as a "liver stimulant." It is said to have no aperient action except when taken in repeated doses. It is especially intended for use in tropical countries, and we can easily understand that for residents in India some such preparation as this would prove of distinct value.

* Year Book of the Scientific and Learned Societies of Great Britain and Ireland. London: Charles Griffin and Company Limited. 1894.

New Books, etc., Received.

- Béri-Béri : its Etiology, Symptoms, Treatment, and Pathology. By ARTHUR J. M. BENTLEY, M.D., C.M., M.R.C.S. Eng., Medical Adviser to the Johore Government, and Physician to H.H. the Sultan. Edinburgh and London : Young J. Pentland. 1893.
- On the Use of Opium in India. By ERNEST HART, D.C.L., Editor of the *British Medical Journal*. London : Smith, Elder, and Co. 1894.
- De La Filariosis, Exposición del primer caso esporádico observado en Europa. Por el Dr. M. FONT Y TORNE. Barcelona : Imprenta de Henrich y Compañía en Comandita.
- Edinburgh Hospital Reports. Edited by G. A. GIBSON, M.D., D.Sc.; C. W. CATHCART, M.A., M.B.; JOHN THOMSON, M.D.; D. BERRY HART, M.D. Volume second. Edinburgh and London : Young J. Pentland. 1894.
- The Reactions of Nucleo-Albumin (erroneously styled Mucin) with the commonly-employed Urinary Albumin Tests. By D. D. STEWART, M.D., Clinical Lecturer on Medicine in Jefferson Medical College.
- The Bristol Medical School. Bristol : J. W. Arrowsmith.
- The Insanity of Over-exertion of the Brain. By J. BATTY TUKE, M.D., F.R.C.P.E., F.R.C.S.E. Edinburgh : Oliver and Boyd. London : Simpkin, Marshall, Hamilton, Kent, and Co. Limited.
- The Jewish Method of Slaughter compared with Other Methods. By J. A. DEMBO, M.D., Physician to the Alexander Hospital, St. Petersburg. London : Kegan Paul, Trench, and Co. Limited. 1894.
- La Femme et la Bicyclette. Par le Dr. JUST CHAMPIONNIERE, Chirurgien de l'hôpital Saint-Louis. Paris : Rueff et Cie.
- Myxoedema, Cretinism, and the Goitres, with some of their Relations. By EDWARD T. BLAKE, M.D., M.R.C.S. Bristol : John Wright and Co. London : Simpkin, Marshall, Hamilton, Kent, and Co. Limited. 1894.
- De L'Aggrandissement Momentané du Bassin. Par ADOLPHE PINARD, Professeur à la Faculté, Membre de l'Académie de Médecine. Paris : G. Steinheil, Editeur. 1894.
- The Sixty-seventh Annual Report of James Murray's Royal Asylum, Perth.

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THE
BIRMINGHAM MEDICAL REVIEW.

OCTOBER, 1894.

ORIGINAL COMMUNICATIONS.

ON SOME OF THE LESS COMMON DISEASES
OF THE VULVA.

BY JOHN W. TAYLOR. F.R.C.S., ENG.
SURGEON TO THE BIRMINGHAM AND MIDLAND HOSPITAL
FOR WOMEN, ETC.

I.—SYPHILITIC ELEPHANTIASIS OF THE VULVA.

FOR several years I have recognised that a peculiarly intractable form of syphilis may affect the vulva and anus.

It is characterised by marked hypertrophy of tissue or a copious hard infiltration, which may transform the clitoris, labia minora, or labia majora into enormous and heavy ball or flap-like folds of tissue. These steadily increase in size, are absolutely uninfluenced by the usual anti-syphilitic remedies, and, although at first free from actual ulceration, may mechanically (by chafing or otherwise) become excoriated in patches. Ulceration is not, however, a prominent feature in the cases I have seen. These pendulous growths of low vitality cause a more or less constant discharge, and warty outgrowths or condylomata may grow all over the perinæum and the lower part of the fold between the buttocks.

The patient usually complains not only of soreness and inconvenience in walking, but (when there is any ulceration) of actual pain, which is sometimes so severe as to keep her awake

at night; and the miserable condition which such a case may present can only be equalled in the more advanced stages of cancer.

But the history of syphilis is clear and marked and sometimes recent. The condition, although it does not improve, remains one of hypertrophy rather than of ulceration. The glands are not progressively affected, and it is not difficult, in the cases of which I am writing, to exclude carcinoma from the diagnosis.

Case 1. One case of this disease I recorded in 1889, as follows:—*Hypertrophy with ulceration of Right Labium minus and clitoris, the result of Syphilis.*—M. A. B., married eighteen months, confined three months ago of a child which is stated to have died in birth, was sent to me by Dr. Vince on October 1st, 1888. She had enormous swelling of the upper part of the right labium minus, which had hypertrophied so as to form a large overhanging fleshy tumour, which in two or three situations was the seat of sloughing ulceration. The pain and distress which this occasioned was very great, and prevented sleep. The enlargement came on shortly after her confinement, and has been steadily getting worse.

For three or four weeks a mixture of the red iodide of mercury was prescribed with cod liver oil, and the affected part was kept clean and dry, a calomel powder being applied to the ulcerations. No improvement followed, and the mental as well as the physical state of the patient being seriously affected by the local disease and the pain accompanying it, it was advised that the part affected should be removed. The patient was accordingly admitted as an in-patient, and the hypertrophied and ulcerated nympha was amputated by the thermo-cautery. The immediate relief was great. The patient, instead of having morose and almost suicidal tendencies, became cheerful and contented. The wound healed without difficulty. No undue swelling or ulceration occurred in the stump. When thoroughly healed, the resulting deformity, if such it could be called, was scarcely noticeable.

Another case, which was kept under observation for several months, appears to be still more characteristic of the disease.*

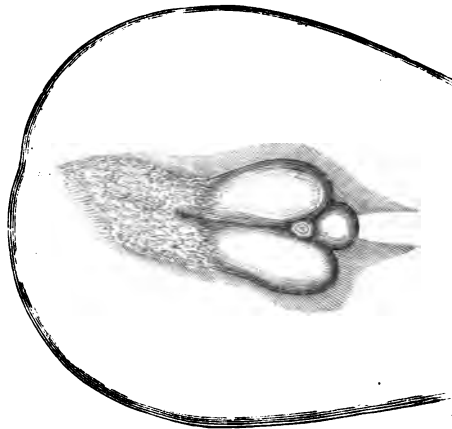
Case 2.—*Enormous hypertrophy of Labia Majora and Clitoris, and extensive warty growths of perinæum and anal region, the result of syphilis.*—Z. M. was married, at 25 years of age, in May, 1890. In October of the same year she came to my out-patient room at the Women's Hospital, suffering from acute secondary syphilis. On her paper of this date I find notes of "general syphilitic skin-rash, syphilitic sore-throat, enlargement of glands, condylomata and some swelling of the left labium."

The evidence of syphilis may therefore be considered as clear and unmistakeable. The patient was at this time about five months advanced in pregnancy. She was ordered a mixture of the red iodide of mercury with iodide of potassium, and advised to continue treatment throughout the whole of her pregnancy if she wished to have a living child. The patient rapidly improved under treatment, but ceased attendance after one month. In September, 1892, the patient returned to the hospital (under the care of Dr. Clark) with great swelling of the labia majora and anal region. She stated that she had had one child (born dead) after her last attendance, and subsequently had had two miscarriages, the last miscarriage having taken place three months before. Some swelling of the labia had existed throughout, but this had steadily increased since the last miscarriage. From this date (September 8th, 1892), until August 24th, 1893, the patient was treated continuously with mercury and iodide of potassium, but without the slightest benefit. In August, 1893, a severe attack of salivation occurred, apparently due to the antisyphilitic treatment, and mercury was discontinued. The patient was for a time confined to bed, and remained away from the hospital until 1894. Early in 1894 she returned to the hospital; I saw her with Dr. Clark and found the clitoris expanded into a large apple-sized growth protruding from between

* For the full report of this case I am largely indebted to my colleague, Dr. A. Clark, under whose care the patient has remained for nearly two years.

the swollen tumours of the hypertrophied labia majora, while all the skin below this, and reaching for some distance up the back, was covered with a hard, irregular, moist warty growth, a tuberculated papular syphilide, which in some parts became drier and fissured. The anus was difficult to find, and occupied the centre of this thickened skin-mass. Much of the function of the sphincter appeared to have been lost, and little channels filled with liquid fæcal matter wandered through the hypertrophied skin of this region.

We advised the patient that the only hope of any relief lay in operative treatment, and she was admitted as an in-patient to Spark Hill on May 24, 1894.



The accompanying sketch gives in outline the condition of the parts at this date, but in order to appreciate the extent of tissue involved and the distortion produced by the hypertrophy, it is important to remember that the thickened skin extends for a long distance behind the anus, and the position of the latter is almost between the hypertrophied labia.

The clitoris-tumour was removed and a large wedge-shaped mass of tissue was excised from each labium. The hypertrophied skin was removed by scissors and cautery down to the level of the healthy skin, and the resulting wounds were dressed with boracic acid ointment.

The immediate relief afforded by the operation was marked, and much of the good gained promises to be permanent. Now, three months after the operation, the clitoris-tumour is of course completely gone, the labia are considerably smaller, but the skin of the anal region is still far from healthy, and there appears to be some return of hypertrophy in the immediate neighbourhood of the anal orifice the sphincter action of which remains imperfect.

The patient herself is pleased with the result of the local treatment, and says that she is much more comfortable. She continues under the care of Dr. Clark, and is at present taking cod-liver oil and Parrish's syrup of the phosphates.

Many writers have described true elephantiasis of the vulva as seen in the East and in Barbadoes, and have occasionally remarked on its possible association with syphilis. Pendulous tumours of this description up to sixteen pounds in weight have been successfully removed (Jayaker, *Med. Times*, 1871, vol. i., p. 37); and most of our text-books deal with the subject (if at all) from this standpoint. (Thomas, Emmet, Scanzoni, Winckel, Pozzi, Edis, Galabin, etc.) This tropical disease, however, has always been regarded as strictly confined to special conditions of climate and race, and whether any case of hypertrophy, as observed in temperate climates, is essentially of the same nature as the true tropical elephantiasis, it is impossible at present to determine.

On the other hand, syphilis has long been recognised as the cause of marked hypertrophy and ulceration affecting the vulva; but most English writers have held that the key to successful treatment of these affections lies in the recognition of their character as syphilitic, and their treatment by anti-syphilitic remedies.

Hill and Cooper, writing of "Pseudo-Elephantiasis" in their work on Syphilis (p. 300), conclude their observations by the following paragraph:—"It is an obstinate affection, only to be got rid of by persevering anti-syphilitic treatment." Thorburn

(Diseases of Women) writes:—"Certain cases of hypertrophy are true tertiary syphilides. Differentiation is difficult. We can only depend on history and the result of anti-syphilitic treatment." Lawson Tait (Diseases of Women, p. 38) writes in the same strain. He graphically describes a case of severe syphilis affecting the vulva, and its cure by the administration of mercury, remarking:—"In every instance a cure has been effected by mercury, whilst iodide of potassium has utterly failed."

Now whatever the relation, if any, of true elephantiasis to the cases I have described, it is evident that they are sharply defined from the manifestations of syphilis as observed by the authors I have quoted, from the fact that they are absolutely uninfluenced by the administration of mercury or any other anti-syphilitic remedies. For this reason I thought until recently that this syphilitic hypertrophy, *in which drugs were useless and operation the only way of benefitting the patient*, had been practically unrecognised. I find, however, that in some of the German text-books the disease has been described in all its essential features.

Schroeder appears to have been the first to recognise the necessity for operative treatment in syphilitic elephantiasis. In describing his own practice, he states that he passes sutures under the base of the tumour and then excises the mass step by step, tying as he proceeds. The excision is done either by knife or scissors, or cautery. He remarks that elephantiasis of the vulva is especially associated with that form of syphilis which affects the anus and buttocks.

Duhrssen is emphatic on the uselessness of medical treatment. He writes: "The cases which I have seen have occurred exclusively in persons affected with tertiary syphilis; antisyphilitic treatment is of no use, the treatment consists in excision."

It is, I suppose, almost unnecessary for me to add that I find myself in complete accord with these writers. Where the clitoris or labia minora are chiefly affected, the necessity for surgical treatment must be obvious, the operation is easy and may be

followed by complete recovery, as in the first case I have described. An additional case of this kind is recorded in the *Transactions of the Obstetrical Society* (vol. xi., p. 84,) by Rogers. He states that there was a suspicion of syphilis in the case, but does not recognise the syphilitic nature of the disease. The hypertrophied clitoris was removed, and with the best results.

When the labia majora and nates are also affected, the problem of successful treatment becomes more difficult. The excision of a long wedge-shaped piece of tissue from each labium, together with the removal of the hypertrophied outgrowths down to the level of the sound skin appears to be the most rational mode of procedure. This is attended with great relief to the patient, but in the worst cases can hardly be regarded as completely curative.

Duhrssen remarks: "the disease frequently extends," and the second case I have recorded appears to have this tendency.

The latter may perhaps be combated by careful attention to nutrition, cleanliness, and general health. In all cases of severe syphilis, these points are of greater importance than anything else.

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ON GONORRHŒA AND ITS COMPLICATIONS.*

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My reason for reading a paper before the Midland Medical Society on a common place subject like "Gonorrhœa" is a belief that each and all of us may profit by occasionally discussing with his fellows the ordinary maladies of every day practice. It must be to our mutual advantage and to the benefit of our patients that we should compare from time to time the results of our individual experiences. Modern scientific advances too in any one branch of our profession affect more or less every other department, and it becomes necessary therefore occasionally to re-examine accepted and cherished opinions even upon the most simple and common complaints.

It is necessary at the outset that we should specify what we mean by the word "Gonorrhœa," and for to-night's discussion I shall adopt the commonly accepted definition which makes it synonymous with "venereal urethritis," acquired usually during sexual intercourse, and distinct from syphilitic and chancroidal infection.

There are two distinct varieties of this disorder—the specific or true gonorrhœa and the non-specific or simple. I am quite sure that every so-called gonorrhœa is not specific; and in a paper read before the local Branch of the British Medical Association in March 1886, and published in the *Birmingham Medical Review* in the following October, on "Spurious Venereal Diseases," I brought forward many cases in proof of this belief. Gonorrhœas are sometimes spoken of as serous, mucous and purulent, varieties which depend not only upon differences in the activity of the inflammatory process, but also on the nature of the contaminating virus. Our views con-

* Paper read before the Midland Medical Society, 1894.

cerning the genetic factors of contagious urethritis are not yet settled, although we are told by bacteriologists that every gonorrhœa depends upon the presence of the gonococcus. Well, this may or may not be ; but I am equally certain that many cases of purulent venereal urethritis are not to be attributed to Neisser's organism at all. Every careful practical observer knows that purulent urethritis—exactly resembling specific gonorrhœa in its symptoms, its signs, its progress, its complications, and its contagiousness—may be set going by the irritation of disorganised physiological or non-specific pathological secretions or even by chemical or mechanical causes. I have several times seen aggravated and complicated attacks of gonorrhœa follow intercourse with women who were menstruating or who were the subjects of simple chronic leucorrhœa. I believe that under certain conditions *any* inflammation may become contagious, and that inflammatory products may be "irritative" to the extent of being contagious without being specific. I am quite willing to believe in the gonococcus of Neisser as one of the causes of purulent venereal urethritis, but that it is the only one is contrary to my experience. Idiosyncrasy plays a greater part in determining the onset and character of a urethral inflammation than does the absence or presence of any micro-organism. Expose three men to the same source of infection within an hour of each other: one will contract a virulent gonorrhœa, one will acquire a simple serous urethritis, and the third will escape altogether. And idiosyncrasy offers the best explanation.

The germ theory of disease is responsible for many strange beliefs ; none are stranger than the theory held by some surgeons that if a urethra has once been invaded by the germs of gonorrhœa it never gets rid of them ; that there always remains a gonococcus or two lurking "somewhere around," capable at any moment of attacking any healthy mucous membrane to which it may find access. If it be true that a person who has once had gonorrhœa is always a possible source of

infection, then there must indeed be very many dangerous people about.

The course of a gonorrhœa is conveniently divided into four stages, upon each of which I have a few words to say.

1. *The stage of incubation*.—The incubation period of gonorrhœa is said to be from two to five days; but the incubation period of "venereal urethritis" may be very much longer. I have several times seen urethral discharges first make their appearance from twelve to fourteen days after intercourse. The shorter this premonitory stage, the more acute is the subsequent inflammation, and, as a rule, the more quickly does the disease come to a termination. I have noticed that a long incubation period is often followed by inflammation of a mild type which is very apt to become chronic and difficult to cure.

I have tried abortive treatment in this incubation stage with occasional success; as a rule, the disease cannot be arrested. An injection containing 10 grs. of tannic acid to the ounce of water has seemed to me to give the best results; but it has to be used very frequently if it is to do any good—about every hour—and abandoned within twenty-four hours if the inflammation is obviously increasing.

2. *The inflammatory stage*.—The acute or inflammatory stage lasts from eight to twelve days (I have seen it continue into the third week), and varies very much in its activity. The severity of pain and the profuseness of discharge are by no means constantly related; I have seen the greatest suffering where discharge has been scanty, and I have seen the most copious purulent secretion attended by scarcely any discomfort.

Treatment of this stage should be of the simplest kind. I give a mixture containing 10 or 15 grs. of citrate or bromide of potash and half a drachm of tincture of hyoscyamus two or three times in the day, with a double dose at bedtime; and if the inflammation is very acute, I add one-sixteenth of a grain of tartrate of antimony to each dose of the mixture. I give the usual directions as to rest and the avoidance of stimulants, and do not permit effervescent drinks, such as soda-water or

lemonade, to be taken. I instruct the patient to drink a large tumblerful of plain water about half an hour before each meal, and I avoid injections of every kind during this period. I have tried local antiseptic measures, with the view of killing the gonococcus, in the form of injections and bougies, but I have been disappointed with them. With regard to injections, my rule is not to give them when micturition is painful, but to begin as soon as the scalding has abated. I might mention here that Hutchinson's practice is to treat all gonorrhœas by the same method, regardless of stage or pain or anything else. His treatment consists of three parts, and he insists upon all being adopted. 1. The administration of santal oil in 10 or 15 m. doses five or six times daily. 2. The injection of a solution of chloride of zinc (2 grs. to the ounce) three or four times daily, and the nightly administration of a draught containing half a drachm of bromide of potassium and three drachms of sulphate of magnesia. One hesitates to criticise the recommendations of so high an authority, but I am bound to say that I have rarely seen the slightest good attend the use of the gonorrhœal specifics given during the inflammatory stage, and I have seen cases recover on Epsom salts alone. I have also had reason to regret having prescribed injections during the acute stage of the malady.

3. *The stage of decline.*—The stage of decline is indicated by the diminution of painful micturition, and it is during this period that local treatment gives the best results. Of the many well-known injections—such as sulphate, acetate, and sulphocarbolate of zinc, alum, permanganate of potash, boracic acid, iron, nitrate of silver, etc.—I prefer the “four sulphates” of the hospital pharmacopœias. The name of the solution is easy to remember and gives the key to the mode of its preparation and its proper use, thus:—*Four* sulphates of iron, zinc, alum, and copper, four grains of each to four ounces of water, used four times daily diluted with four times its bulk of warm water. The strength is gradually increased by diluting less freely until discharge ceases, and is then gradually weakened down again

before being discontinued altogether. Much disappointment is often experienced by the return of discharge after injections are discontinued, but this may generally be avoided by gradually weakening the strength of the injections before finally stopping them altogether. If injections are painful—no matter what their strength,—they had better not be persisted in.

4. *The stage of gleet.*—The stage of gleet is as a rule the most difficult to deal with ; and so much has been written, and so many views taken of its causation and treatment, that it would occupy more than the whole time allowed to a paper were I to attempt to discuss them. Otis of New York sees in every gleet a stricture, and frames a treatment by instrumentation accordingly. A well-known English authority looked upon the small meatus as the common predisponent. Berkeley Hill was always able to discover by the aid of the urethroscope granular patches somewhere in the canal, and found topical applications necessary for their cure ; some writers have invariably met with chronic inflammations in the urethral or prostatic follicles, and others still find an explanation in a condition of general debility. While admitting the possible correctness of all these views, I believe that inherited gout and rheumatism are responsible for many a gleet, and that chronic inflammation of the seminal vesicles is a more common cause than any of those mentioned above. The treatment of a gleet depends on the cause of it, and until the cause is ascertained, any treatment adopted must be empirical. The rule of thumb methods, such as passing large bougies, irrigation of the deep urethra with medicated lotions, perineal counter-irritation, the administration of combinations of specific remedies will doubtless secure a certain number of successful results, but in spite of all your recognised plans you will occasionally meet with gleans which defy your skill. Fortunately for such patients there is no danger in their malady, so long as urethral contraction is not present. Finally, I would add that some gleans are kept going by the very measures which are being diligently employed for their relief.

I know no inflammation which is liable to so many complications as urethritis, but I can only refer very briefly to practical points connected with a few of these :—

Phimosis and paraphimosis are best dealt with by immediate circumcision.

Balanitis and posthitis yield most quickly to a lotion composed of one ounce each of liquor plumbi subacetatis and rectified spirit, and a drachm and a half of pure carbolic acid in ten ounces of water. The ordinary lead lotions of the Pharmacopœias are much too weak.

Lacunar abscesses are most common in the line of the coronal furrow, and the sooner they are incised the quicker they get well. Although urine may, and often does, leak through the opening for a time, I have never known a fistula remain. I have several times seen one of Cowper's glands inflamed—the so-called "Cowperitis." It is a painful affection, gives rise to a deeply-seated one-sided swelling placed far back in the perinæum, and may be easily dealt with by deep and early puncture.

Chordee can, to a certain extent, be prevented by keeping the penis fastened up in front of the pubes instead of allowing it to hang down in the usual direction. This can easily be done with a handkerchief, or by means of a von Baer's triangular bandage. Chordee can best be relieved with suppositories of morphia (half grain) or belladonna (one grain); but much also may be done by controlling nocturnal erections with night draughts of bromide of potassium.

Hæmorrhage from the urethra is rarely serious, but I have seen one or two cases where much blood has been lost. In addition to the local application of cold and pressure, I would particularly call your attention to the value of sodium sulphate as a hæmostatic when given internally in 20 or 30-gr. doses every one or two hours. The power of the salines to control hæmorrhages of almost every kind is a therapeutic fact not generally appreciated.

Retention of urine must be dealt with by the aid of the hot

bath and opium, and the use of a *soft rubber* Jaques catheter if necessary. I have had to puncture the bladder for the relief of this condition in a young man during his first gonorrhœa.

When the inflammation has journeyed down to the deep urethra it may extend itself in three directions—to the bladder, to the prostate, or to the ejaculatory ducts.

"*Clap*" of the Bladder is amongst the rarest of the complications. It cannot possibly be overlooked, as it is one of the most distressing and painful maladies from which it is possible to suffer. The terrible vesical tenesmus, the persistent straining, the blood and pus in the urine, the agonising pain make the presence of the malady only too obvious. Free local blood-letting—a dozen leeches to the perinæum—the almost continuous use of sedatives, hot fomentations, and absolute rest in bed, are the chief indications to follow; I have only seen two cases of acute clap of the bladder amongst the many scores of gonorrhœa which have come under my care.

Inflammation of the neck of the bladder is a much talked-about complication, but it is one in which I have but little faith. I think that such a diagnosis is usually an error, and that cases which are so described depend upon disease in structures which are outside the bladder altogether—either the seminal vesicles or that part of the vas deferens which is adjacent to them, the ampulla of Henle.

Prostatitis—both acute and chronic—are also in my opinion very rare as complications of gonorrhœa; they are said to be of common occurrence, but they are usually mistaken for the diseases next to be mentioned.

Spermatocystitis or inflammation within or about the seminal vesicles, and *Vasitis*—if you will allow me to use the term—or inflammation about the proximal subvesical end of the vas deferens, are two of the most common complications. The text-books scarcely make mention of them, but of their reality and of their frequent occurrence I am absolutely convinced. Every practitioner is aware how often urethral inflammations extend along the seminal passages to the epididymis,

giving rise to the well-known gonorrhœal epididymitis, but few seem to realise how liable also is the seminal apparatus beneath the base of the bladder (both vas and vesicle) at the same time to be affected. Think for a moment what happens in epididymitis—an inflammation begins at the external meatus, spreads slowly down the whole length of the urethral canal to the utriculus, enters the common ejaculatory duct, and travels eighteen inches along the vas deferens to the epididymis—of this there can be no doubt, the fact is seen daily; but when a spreading inflammation has entered the common ejaculatory duct it must pass the duct of the seminal vesicle and must affect the proximal end of the vas on its way to the epididymis. The seminal duct being less than half an inch long it is infinitely easier for the inflammation to gain access to the vesicle than to the epididymis which is at least a foot and a half further on. Anyone can soon convince himself of the fact that *spermatocystitis* and *vasitis* are common complications of spreading urethritis if he will carefully examine with a finger in the rectum patients who during an attack of gonorrhœa complain of the symptoms which the text-books attribute to prostatitis, inflammation of the neck of the bladder, or vesical irritability. Approach your patient without prejudice, remember exactly how far from the anus the normal prostate lies and what it feels like; you will find in the above cases that the swelling is beyond the prostate altogether, is more or less unilateral, and is clearly over the base of the bladder itself. This swelling is exactly analogous to what we find in the scrotum in epididymitis.

I must content myself simply by calling your attention to this subject, and would refer you for fuller particulars to a paper read before this Society in November 1890, and also to a paper read before the Surgical Section at the Glasgow meeting of the British Medical Association in 1888; both of which are published in the *British Medical Journal*.

Gonorrhœal Rheumatism is a familiar complication, and is known chiefly to occur in diathetic patients. It is an obstinate malady, and does not yield readily to ordinary anti-rheumatic

treatment. The mistake is constantly made of treating the wrong half of the malady. It is the gonorrhœa which calls for treatment, not the rheumatism. Cure the gonorrhœa, and the rheumatism will soon disappear. Suitable urethral injections will do more for the relief of a brace of gonorrhœal knee-joints than any quantity of the salicylates.

Sciatica and Lumbago are occasionally of gonorrhœal origin, and in their treatment, attention to the urethra is of primary importance.

I might refer to several other occasional complications did time allow, but I bring my paper to a close by a few remarks on *Gonorrhœa* as it affects women. First, as to the seat of the disease: It may be primary either in the urethra or the vagina. It may extend from one to the other, and may spread to the bladder, the uterus, the Fallopian tubes, or even to the peritoneum.

It is to be treated by local measures, exactly on the same principle that we treat acute inflammation in any other readily accessible part. I have a fancy for the lotio plumbi c. carbolico previously referred to, and have seen no harm whatever from gentle vaginal or urethral syringing. The inflamed parts must always be freely bathed with the lotion, and then kept out of contact with each other by strips of lint, which are to be soaked in the lotion and frequently changed. Specifics are of no value. Labial abscess is the most common complication, and is to be treated by early free incision.

When the disease extends into the uterus and tubes it becomes a serious affection, its treatment bristles with difficulties, and its dangers are great. Our most advanced gynæcologists assure us that much of the pelvic suffering in women to-day has its origin in gonorrhœa, and that most of the puerperal inflammations are attributable to this cause. Some authorities assert that gonorrhœa in the woman is an absolutely incurable malady, and that when once she has been affected she is liable for ever afterwards to inflammatory outbreaks in one or other of the pelvic structures. Whether this is true or not I must leave them to settle amongst

themselves, but I may be permitted to express my belief that in the other sex the malady can undoubtedly be cured.

I should, in conclusion, like to say a few words on the subject of the urethral discharges which are due to *urethral chancres*. (I do not include chancroids in making the following statement.) Urethral chancres are more common in my experience than is usually stated. They always occur in the terminal arch of the canal. They are sometimes attended with a mild outbreak of "secondaries," which is easily overlooked, and it is exceptional for a symptom-giving stricture to follow. The obstinacy of several "gleets" which have fallen into my hands has been explained by the presence of urethral chancre. In such cases tertiary syphilis may appear in later years, and a patient may be speaking what he believes to be the truth when he assures you that he had a gonorrhœa only in his earlier days, and that he positively never had a penile sore of any kind.

ENDEMIC CANCER.

BY T. LAW WEBB, L.R.C.P. LOND.

IN December, 1892, I contributed to this *Review* a note on a remarkable series of six cases of cancer occurring in one house, or, rather, in two dwellings under one roof, and also mentioned another series of three cases treated by me in one cottage.

Since that notice was published I have ascertained that there are other instances of a sequence of cancer cases occurring in one and the same dwelling in this immediate neighbourhood. Bearing in mind the possibility that the cause of cancer may be a parasite, or miasm, or poison taken into the body in the water used for drinking, I have endeavoured as far as possible to find out the source of the water-supply to these "cancer-houses."

Towards the end of the paper above referred to I mentioned a house in which a domestic servant had suffered from cancer

of the breast in 1864, and in which also a gentleman who had been for thirty years an inmate, died from cancer of the bladder in 1890. A lady who has for many years paid an annual visit to this house, staying some weeks on each occasion, tells me that her maid, who always accompanied her on these visits, died last year (1893) from cancer of the uterus. It is singular that the inhabitants of this dwelling do not drink the water from their own pump on the premises. For some reason not very evident they prefer the water from a pump situated close to a row of old cottages four hundred yards lower down the valley. In these cottages I attended a woman with cancer of the breast in 1875, and another with cancer of the uterus in 1885. The pump is close to the houses and not far from a cesspool.

In 1868 a maiden lady, living at No. 5 in a terrace in which were five houses, died from cancer of the breast. Her brother, who had formerly lived at No. 1, kept a public house two miles away. He died from cancer of the mouth. His widow continued the business for some years and then retired, coming to reside in the above-mentioned terrace at No. 1. She died soon after from cancer of the uterus, in 1884.

An accountant, in a village near here, died from cancer of the breast in 1869. His housekeeper died in the same house from cancer of the stomach in 1885. And this year (1894) the gentleman who succeeded to the duties of the deceased accountant succumbed to cancer of the tongue, complicated with disease of the lungs. He occupied the same rooms as his predecessor. The water used in this house comes from an open well by the road-side.

The wife of an iron-worker died, from cancer of the uterus, in a certain row of cottages in 1867. The man soon married again, and continued to live in the same house ten or twelve years. He then moved to a house nearer to his work, where he soon afterwards died from heart disease. His widow died in 1892 from cancer of the uterus. The water used for drinking, in the row first mentioned, was a mixture of surface-water and spring-water from a road-side spout.

A pattern-maker died in 1875 from cancer of the rectum. His widow died in the same house, also from cancer of the rectum, in 1884. And a daughter, who had lived for many years with these old people, died here from cancer of the breast in 1888. Drinking-water was obtained from a pump a few yards from a cesspool.

A labourer, who lived in a block of houses near to the Severn, died in 1876 from cancer of the rectum. His widow died in the same house, in 1877, from cancer of the bladder. In this case the diagnosis was confirmed by a *post mortem* examination. The water used for drinking by these people was either from the river or from a road-side well half a mile distant.

In 1885 a furnaceman died from obstruction of the bowel of an obscure kind. A *post mortem* examination revealed the presence of a button-shaped mass of carcinoma in the sigmoid flexure of the colon, and also secondary growths in the anus and perinæum. He died in one of two cottages forming a single building, lying back from the road, in a garden. Last year (1893) a woman died in the other cottage from cancer of the uterus. Both these houses use water from the same well, which is near the privy. There is no drainage whatever. A cesspool receives everything, and is emptied once in five or six years.

I place these cases on record, without note or comment, as a humble contribution towards a better knowledge of the etiology of cancer. I am satisfied that the scanty list of "cancer-houses" in this district, as given above, could be considerably extended by careful enquiry. But the search would have to be, to a considerable extent, retrospective, and this would add enormously to the difficulties encountered. Every day the number of "old inhabitants" diminishes, and the chance of rescuing from oblivion facts and details in the history of a district becomes less and less. Unfortunately, for the purposes of this enquiry, the assistance to be derived from the books of the District Registrar of births and deaths is not

great, owing to the meagreness of the facts certified. Medical men themselves are to blame for some at least of this "plentiful lack" of information. When they certify a death as caused by "Cancer," or, still more vaguely, by "Malignant Disease," and do not trouble to state the organ or part of the body affected, or whether the growth is a sarcoma or a carcinoma, they certainly hinder the progress of knowledge, slow enough in all conscience already. But the Registrar himself is a grievous offender, by reason of his sins of omission. Under the heading "Residence," perhaps the name of a district equal in size to half a parish is given! Very frequently the name of the parish only is stated, and there is positively no clue whatever which can lead to the identification of the street, let alone the house, in which the death took place.

It is a good rule to be chary in finding fault, unless a practical remedy can be suggested at the same time. I therefore propose that my professional brethren systematically make use of the counterfoil in the "Cause of Death" certificate book, to preserve brief notes of the residence and disease in the fatal cases certified by them. I do this with some diffidence, fearing that I shall be classed with those who are always seeking to add some burden, grievous to be borne, to the load already carried by the long-suffering general practitioner.

CHOLÆMIA.*

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FROM time immemorial the influence of the Bile upon the human body for good or evil has been fully recognised, but although centuries have elapsed since the earliest writings appeared, we have made at the present day little if any advance towards the clearer conception of the functions with which the

* Paper read before the Queen's College Medical Society.

bile is endowed. The excessive formation of bile was considered by Hippocrates and Galen a fruitful source of disease, whilst Aristotle degraded it to the position of an excrement exerting little effect upon the food or anything else ; and apparently this is the opinion held by the physiologists of to-day. When we consider the proportionate size of the liver to the body and the quantity of bile daily secreted, we can hardly fail to be impressed with the idea that the bile must play a very important rôle in the animal economy. We naturally turn to the physiologist to enlighten us in regard to the function of the bile, but probably in no other region of experimental physiology have the results been of so little practical importance to the physician, and consequently we are compelled to treat empirically what forms a very large class of disease.

In its widest signification *Cholæmia* indicates a condition wherein the essential constituents of the bile are circulating in the blood ; whilst by the term *Jaundice* or *Icterus* is understood a *cholæmia* in which the bile elements, and especially the pigments, have passed out of the vessels into the tissues of the body.

Thus two forms of *cholæmia* exist, the one in which jaundice is absent, the other in which it forms the chief feature ; and too little importance is attached to the recognition of the distinction between these two conditions, more especially when we consider how frequently many insidious but nevertheless extensive changes occur in the parenchyma of the liver without any icteric sign, although traces of the bile constituents may be detected in the urine and blood of such cases.

Between the absorption of bile and the manifestation of jaundice there is an appreciable space of time, although the necessary conditions for the production of jaundice have been present during that period. Consequently we must regard jaundice as a possible but not necessary sequence of *cholæmia*. Under the heading of *cholæmia* we may group all those conditions proceeding from faulty bile secretion or excretion, with or without the manifestation of jaundice, and it is in the consideration of the latter class that I am now concerned.

The attention of all of us is continually being drawn to a very large class of cases which, whilst presenting no one train of symptoms, possess certain features in common; a group of symptoms definite through their indefiniteness.

Where jaundice occurs there is usually little doubt as to the cause or plan of treatment to be adopted, but in those cases where that symptom is wanting difficulties arise, and more especially where the symptoms are only slightly marked. In the milder forms of cholæmia the condition of the patient is that of listlessness and depression, with impaired power for mental and physical exertion, and more or less disturbed digestive functions. In some cases the muscular weakness may amount to almost complete loss of power. Thus in a case that came under my care the patient during the attacks was unable to write distinctly, whilst walking was a matter of difficulty; he consulted me under the impression that he was suffering from some serious nervous affection. Examination of his urine revealed the presence of bile, and during every attack traces were to be found without any other abnormal constituent. Saline purges entirely removed his distressing symptoms, and during the last year the attacks have been less frequent and less severe, and were immediately relieved by free purgation.

In the more severe cases delirium may occur passing on to convulsions, coma, and even death. Such cases may be mistaken for uræmic convulsions, more especially where a slight amount of albuminuria coexists, and this is frequently the case in malarial diseases.

The causes of cholæmia are numerous, although in the majority of cases they can be traced to errors in diet, to deficient exercise, or to excessive mental or physical strain. The liver is the safety valve of the brain, and when that is overtaxed the proper innervation of the liver is interfered with, and the blood becoming charged with effete materials produces impaired mental activity and so enforces rest. The other digestive organs are similarly affected and assist in warning us that there is a limit to the capacity for brain work.

It is a noteworthy fact that among business men cholæmic attacks of a mild form are of regular occurrence on Sundays, and the reason is to be found in the fact that a week of close office work is followed up by some vigorous form of exercise on the Saturday. Two cases may be cited as illustrations of this statement—in the one, Saturday afternoon was devoted to horse exercise and was invariably followed next day by a feeling of intense langour and depression, together with headache and a feeling of nausea; a saline purge taken after the ride prevented the attack. In the other case a Turkish bath was followed the next day by similar symptoms, and in this case also a saline purge prevented their occurrence. In these cases I believe the liver, torpid during the week, became suddenly stimulated to vigorous secretion, and that owing to deficient intestinal evacuation a portion became absorbed into the system and caused cholæmic symptoms.

The question which naturally occurs to us is to which constituent or constituents of the bile are the symptoms due? and we should expect to find that the question could be answered by means of analysis of the urine or other excretions of the body; but unfortunately we are unable to detect, with our present tests, small traces of the bile elements. For Pettenkoffer's reaction to occur, probably 4 per cent of bile acids are required; and though Neukommen's and Strassburg's modifications give greater possibilities of detecting smaller quantities, they are not reliable. Pettenkoffer's fluid has a distinctive absorption spectrum, and Schenk has shewn that it is fluorescent when diluted freely with acetic acid; and these are useful confirmatory tests. I usually employ Strassburg's method; but I repeat the process by drying the blotting paper carefully between successive additions of the urine, so as to concentrate thereby.

I have tried Hay's test with sublimed sulphur systematically in some hundreds of specimens, and have found it absolutely worthless.

For the detection of the bile pigments Gmelin's test with

impure nitric acid is the most reliable; and as the reaction is due to the nitrous acid, and there is sometimes a difficulty in obtaining a sufficient proportion of this nitrous acid, I employ copper nitrate dissolved in excess of strong nitric acid, which rapidly gives off nitrous fumes on exposure to the air.

One important fact to remember in testing for bile is that the tests are nearly all colour reactions, and that these require some time to elapse before they commence, and certainly before they are markedly developed; and neglect of this fact is a frequent cause of failure to detect bile even when present in high proportions.

The results of experimental injection of the various constituents of the bile have not thrown much light upon the subject. Injection of the bile acids has been followed by irregular muscular twitchings, passing on to absolute rigidity in dogs, whilst in rabbits 10 per cent. injected subcutaneously gave rise to a condition of listlessness followed by convulsions and finally death, and the urine contained bile acids but no pigment. A similar result was obtained when the acids were injected into the rectum. Bile pigments alone injected failed to give any results.

Austin Flint in 1862 advanced a theory that the cholesterin normally excreted by the fæces became reabsorbed if the excretion was interfered with, and gave rise to a condition which he called Cholesteræmia. Unfortunately the insolubility of cholesterin prevented its being injected; but its normal presence throughout the various tissues and fluids of the body hardly suggests any toxæmic property, and we conclude that the symptoms of cholæmia arise in all probability from the bile acids circulating abnormally in the blood stream.

In the treatment of cholæmia, free purgation is the key-note, and probably the saline and mercurial aperients are more beneficial than the vegetable drugs. The first step is to remove the biliary elements by means of the excretions, and to clear out the liver, when it will be found that the other

digestive disorders disappear. One is too prone to consider the liver as affected secondarily to the stomach, whereas in the majority of cases it is the primary cause of the troubles.

BRITISH INSTITUTE OF PREVENTIVE MEDICINE.

WE have received from the Chairman of the Council of the British Institute of Preventive Medicine a notice stating that a legacy of £20,000 has been handed to the Institute "for the purpose of building and endowing a Laboratory for the chemical and bacteriological examination of water and the investigation of processes of sewage precipitation." The permanent laboratory in Chelsea being not yet finished, a temporary one has been fitted up, and this branch of the work of the Institute has been placed in charge of Mr. Joseph Lunt.

The Institute is now prepared to carry out the bacteriological and chemical examination of any samples of water which may be submitted, and also undertakes the bacteriological and pathological diagnosis of any morbid material. Particulars may be had from the Director, 101, Great Russell Street, London, W.C.

In the same circular it is stated that the number of morbid specimens sent for diagnosis has increased so much that a bacteriologist has been specially appointed to attend to this portion of the work of the Institute.

Many will remember the paper which Dr. Armand Ruffer, the Honorary Secretary to the Institute, read in Birmingham before a conjoint meeting of the members of the Birmingham Branch of the British Medical Association and those of the Midland Medical Society. Dr. Ruffer dealt with the great advantages which modern study of bacteria has brought to mankind, and urged his hearers to recommend the cause of the proposed Institute to all those able to help it by subscriptions, as well as to support the plan by their own contributions. Many remarks were subsequently made at the meeting, and in the main they were friendly to the project; and the medical

profession at large have, to all appearances, heartily given their help in both ways suggested by Dr. Ruffer. It should be remembered that the objects to be served by the Institute embody the providing of instruction to Medical Officers of Health and other students and members of the profession who may wish to avail themselves of the opportunity, and also the supplying of remedial agents which are the products of bacterial life, the consideration of the value of which is at present attracting so much attention.

There can be no doubt that, the laboratories once in working order, much good service will be done to the cause of preserving the public health. Whether or not many important steps will be gained by means of the Institute in the science of medicine will depend upon the fact whether a sufficient number of workers can be found to do the teaching and the routine investigations, so as to leave to the chief sufficient time for new research. Nearly all, if not all, good research work which has emanated from institutions of this kind has been done by the actual work of, or under the suggestion and guidance of one man, and the conditions of experiment, especially in bacteriology, have at the present day reached such complexity that many assistants are required in order to complete an investigation, with all the necessary variations of the conditions of experiment, in a reasonable time.

It is very much to be hoped, therefore, that, when once the permanent laboratories are fitted, sufficient assistance will be forthcoming to allow the Director to prosecute research unhampered by the daily calls for the examination of morbid specimens, etc., and the necessity of teaching the elementary principles of pathological investigation, in order that the Institute may rival those of Berlin and Paris in the records of scientific research which it will produce.

REPORTS OF CASES.

A CASE OF CHRONIC INVERSION OF THE UTERUS SUCCESSFULLY TREATED WITH CONTINUOUS ELASTIC PRESSURE.

BY CHRISTOPHER MARTIN, M.B. EDIN., F.R.C.S. ENG.,
HON. SURGEON TO THE BIRMINGHAM AND MIDLAND HOSPITAL FOR WOMEN.

Inversion of the uterus is an extremely rare condition. In its acute form it is a complication of the third stage of labour, and occurs only once in about 200,000 deliveries. In many of these cases the accoucheur is able at once to replace the uterus. In many others the patients die of shock, hæmorrhage, or septicæmia. In about one-fifth of the cases the uterus is not replaced and the patient does not die, but lingers on for months or years, suffering and bleeding, with her womb turned inside out. Thus, out of about one million deliveries we may expect to see but one case of *chronic* inversion of the uterus. I make, therefore, no apology for recording a case of this interesting and rare condition which passed through my hands some twelve months ago.

On September 23rd, 1893, Dr. Motteram, of Smethwick, asked me to see with him a young married woman who was suffering from severe uterine hæmorrhage. He told me that he had examined her, and found in the vagina a smooth pedunculated tumour which he believed to be the inverted uterus. I confess I went to the case fully expecting that it would turn out to be one of fibroid polypus; but a careful examination, under an anæsthetic, fully confirmed Dr. Motteram's brilliant diagnosis.

The patient was 25 years of age, had been married four years, and had had three children. The first two confinements were practically normal. During the third pregnancy she had several

epileptic fits, and during the last three months had severe bearing-down pains and a feeling of fulness in the vagina. Labour began on May 15th, 1893. She was not attended by any medical man, and a midwife officiated. The waters did not break till the birth of the child. The midwife dosed her freely with brandy and gin. Violent uterine contractions immediately came on. She went upstairs, and had just time to lie down on the bed when, with a very severe pain, the child was born. She then felt all right, and raised herself on one elbow to look at the child. In order to expel the after-birth, the midwife pressed with one hand forcibly over the uterus and told the patient to cough. She did not, so she says, pull on the umbilical cord—at least she cannot “remember doing so.” The placenta came away suddenly, and was followed by such furious hæmorrhage that the patient fainted. When she came to herself she was lying in a great pool of blood, and was very collapsed. She slowly rallied, however, and then began to suffer severe pain in the left ovarian region.

Retention of urine set in. On the evening of May 16th the midwife sat her over a chamber containing hot water, and whilst there, passed her hand into the vagina and removed some blood clot. She told the patient there was another “big clot” there, which she pulled at but failed to get away. (This was almost certainly the uterus.) The patient did not pass any water till the evening of the 17th, and then only with great pain and difficulty. She stayed in bed a fortnight, losing freely all the time. When she got up there was a great feeling of fulness in the passage. She went into the country for a week, and during this time the loss ceased. On her return, however, it recurred and lasted without intermission till the date of consultation, a severe flooding occurring if she made the least exertion.

On September 15th she was carrying her baby, when she felt a violent pain in the pelvis and alarming hæmorrhage occurred. She tried to make water, and felt something slip down and hang through the vulva. She was lifted into bed, and by pressing on the lump was able to reduce it into the vagina. It came down

again on September 20th, and she returned it as before. Dr. Motteram was called in and examined her, came to the conclusion that the uterus was inverted, and asked me to see her.

On September 23rd I found her very anæmic from the repeated losses of blood. I examined her under chloroform, and found, filling the vagina and visible on separating the labia, a smooth, firm, deep red, pear-shaped mass, which was continually weeping blood from all parts of its surface. At the upper end it was continuous with the vaginal wall at the level of the fornices. A careful bimanual examination shewed that above the level of the vaginal reflexion there was no trace of uterus or even of the cervix. The same absence of the uterus from its normal position was also demonstrated by passing a sound into the bladder and one finger into the rectum. Above the vaginal reflexion no solid body was felt to intervene. Moreover, on careful scrutiny of the globose extremity of the swelling, the two dimple-like internal orifices of the Fallopian tubes could be recognised. It was obvious that the uterus, including the cervix, was turned completely inside out.

The patient was admitted into the Women's Hospital on September 25th. I again put her under chloroform and tried for nearly an hour to reduce it by manipulation, but absolutely failed to make any impression on it. What may be easy in the big soft flabby bag-like uterus that is found in recent acute inversion was, I found, utterly impracticable in the small, firm, solid, chronically inverted uterus.

I then decided to try continuous elastic pressure by means of Tait's cup and stem repositor. I applied the medium-sized cup to the fundus, and by means of elastic cords attached above to a waist-belt and below to the stem I was able to exert gentle but continuous upward pressure on the fundus in line of the axis of the pelvis brim. At the end of eighteen hours the cup had returned the cervical portion and only the fundus remained inverted. I removed the cup and was able by the firm upward pressure on the fundus by two fingers introduced into the cer-

vical canal to effect the complete and final reposition. I then washed out the cavity of the flaccid uterus with hot Iodine water, administered Ergot freely, and got the uterus to contract. After this the patient recovered without one bad symptom, and she returned home at the end of a fortnight. Since then she has menstruated regularly and normally, and is now in excellent health. The continuous pressure of the repositor gave the patient considerable pain, requiring the free administration of morphia during the reduction.

The experience of this case taught me the uselessness of manual taxis in the reduction of chronic inversion and the ease with which the uterus can be reduced by continuous elastic pressure. With but a superficial examination, the uterus might easily have been mistaken for a polypus, and the ecraseur applied with disastrous results. The history of the case and the absence of the uterus above the vagina were, however, quite diagnostic.

CASES OF PULMONARY ABSCESS SIMULATING EMPYEMA.

BY O. J. KAUFFMANN, M.D.

PHYSICIAN FOR OUT-PATIENTS AT THE QUEEN'S HOSPITAL.

Two cases of metastatic suppuration, or multiple abscesses, in the lungs have recently occurred in the Queen's Hospital which appear to me to be noteworthy from their individual features and from the fact that the second case materially helps to explain the appearances met with in the first.

The first case was that of a boy, under the care of Mr. Marsh, who suffered from suppuration in the mastoid cells and secondary abscesses in the lungs, of which complication he died.

On removing the lungs, there appeared to be on each side an empyema, limited from the general cavity of the pleura and much greater in extent on the left side than on the right.

The corresponding areas on the surfaces of the lungs and on what appeared to be the cortical pleura were seen to be covered, as far as the apparent empyemas extended, with granulations secreting pus. The apparent empyema cavities were, however, very shallow, and the lungs were almost in contact with the chest-walls. The lungs contained numerous abscesses, some of which were in evident communication with open bronchi, and contained foetid, dark-coloured, and very liquid pus. Some of these abscess cavities were deep within the substance of the lungs; the greater number, however, lay close underneath the pulmonary pleura. A few of the abscesses still consisted, in greater part, of semi-solid lung tissue in process of disintegration.

The most striking fact was that the apparent empyemas contained pus—though, as before remarked, only a very small quantity—which resembled that found in the cavities in the lungs. No communication could be found on either side between the empyemas and the lung or bronchi. It may be mentioned that one empyema measured about three inches by two, and the other five inches by four.

The curious appearances and characters just described were elucidated by the second case—that of a child which died of suppurative periostitis of the femur and tibia complicated by acute pericarditis and suppuration, in the form of many small scattered foci, in both lungs. There were no large cavities, and again, a great number of the abscesses were found lying close underneath the pleura. On removal of the lungs, there appeared numerous patches of suppuration, apparently between the parietal and the visceral layers of pleura, but none of these patches reached the diameter of half an inch. In every respect, except size, they resembled the apparent empyemas described in the last case, but their mode of origin here was plain.

A number of the pulmonary abscesses were perfectly superficial, shining through the thinned pleura and not invading the lung tissue. They appeared to have taken their origin in and to have remained limited to the delicate connective tissue of

the deepest layers of the pleura. Others, however, had extended somewhat into the pulmonary tissue. These appearances made clear the presence of the several suppurating foci which, at first sight, gave the impression of lying in the pleural cavity. This deceptive appearance was evidently produced by the cohesion, by inflammation, of parietal and visceral pleura over the superficial abscesses of the lungs, and the tearing necessary in removing the lungs had caused the visceral layer to be left upon the parietal, thus laying open the shallow abscess-cups on the surface of the lungs and leaving the pulmonary surface of the pulmonary pleura exposed on the chest wall.

Clearly these small opened abscesses were identical with the large ones, simulating empyemas with only very scanty contents, which occurred in the first case, and these latter must therefore be regarded as pulmonary abscesses, situated primarily within the lung or in the deepest layers (those nearest the lung) of the tissue of the visceral pleura.

It is worth remarking that in those small abscesses which retained their pleural covering, the latter was very thin—not thickened as one might have expected—the suppurative process having appeared to destroy the pleura in its deeper layers. The pleura, in these instances, retained its glistening appearance.

It is not clear why none of the abscesses extending into the pulmonary tissue should have lost their pleural covering, for many of these likewise shewed the pleura much thinned; but the fact was evident, that in neither of the above cases any but the completely superficial abscesses, *i. e.*, those apparently starting in and remaining limited to the deepest portions of the serous membrane, lost their distal covering in process of removal of the lungs from the body.

A CASE OF
PRIMARY RECURRENT RETINAL HÆMORRHAGE.

BY ROBERT W. HENRY, M.B.,
HOUSE SURGEON, BIRMINGHAM AND MIDLAND EYE HOSPITAL.

THE following case of this comparatively rare disease may prove of interest :—

J. H., age 19, a young man of effeminate features, a hair-dresser by occupation, attended the out-patient department of the Eye Hospital on the 29th of October, 1893. He said that ten days before the sight of the right eye failed suddenly, and after remaining "quite dark" for about half an hour became "as good as before;" his sight came and went in a similar manner two or three times during the following week, until four days ago, when he again lost the sight of the right eye, and had a severe headache, a feature which was absent from the previous attacks. His sight has been improving, but still is dim.

On examination, R.V. = $\frac{6}{18}$, L.V. = $\frac{6}{8}$. The right pupil is sluggish in action; there is a hæmorrhage in the retina below the disc, and a large opacity in the vitreous, the result of a hæmorrhagic effusion near the periphery, to the lower side. Patient suffers much from constipation and headache; his feet are always cold; has attacks of epistaxis; lies in bed with head low; his heart sounds are normal, and urine contains neither albumen nor sugar; he is of steady temperate habits; his brother and two sisters are strong and have good sight.

Progress of Case.—Jan. 9th, 1894. Hæmorrhage below disc has quite disappeared; the opacity in vitreous has cleared up; the retinal veins are large and dark.

Jan. 31st. Two days ago had a further attack of dimness. To the outer side of the retina, near the periphery is a patch of hæmorrhage, in area equal to about one and a half times that of the disc, part of which is commencing to undergo fatty degeneration, from which, along the line of one of the veins, there runs in towards the disc a fine fluffy opacity in the retina. The

veins are very tortuous, especially that running to the site of the hæmorrhage, appearing almost as if twisted upon itself. He had a recurrence of headache and constipation, and had been doing a lot of cycling during the day.

Feb. 7th. Area of fatty degeneration has increased. Diarrhoea.

Feb. 21st. In addition to patch of fatty change to outer side, an extensive area of degeneration was seen at the extreme periphery below, probably at site of first hæmorrhage. On November 25th vision of each eye = $\frac{5}{6}$.

Patient at this date ceased to attend, and, as he did not respond to letters sent, no further information could be obtained as to his condition. He was treated throughout by purgatives and bitter tonics.

In nearly every respect this case is similar to those referred to by Mr. Eales in the July number of this *Review*, 1880. In this, as in the previous cases, there was recurrence: the opacity in the vitreous cleared up with remarkable rapidity; the veins were large and tortuous; the hæmorrhages were chiefly peripheral; the "ultimate result was glistening white patches" of fatty degeneration near the periphery; the exciting cause was in all probability over-exercise; headache and constipation was noted in every instance. The chief point of difference is that whereas in Mr. Eales' former cases it was the left eye which was primarily and mainly affected—although in several the right afterwards shewed similar changes—in this instance the right eye alone was in any way diseased.

A CASE OF FRONTAL ABSCESS.

BY R. W. HENRY, M.B.

M. N., age 24, attended at the Eye Hospital on April 14th, 1893. She states that eight years ago a house fell in which she was working, and she was rendered insensible by a blow over the right eyebrow. Both eyes were filled with dust and mortar. The wound soon healed, and she had no trouble with it till

March, 1892, when an abscess formed, and pointed at the upper and inner angle of the right orbit. It was poulticed, and burst about five weeks after it was first noticed. "A large quantity of matter came away, with which was a solid piece much harder than the rest" (? a sequestrum). When the abscess burst, patient said she fainted. It soon closed up, and at intervals recurred during the year. She had continual headache, and lost all sense of smell on the right side. In the last week of March, 1893, the abscess again pointed in the same position as before, and as it seemed increasing, she came here for treatment.

Progress of case.—April 14th. Abscess was opened to-day; carious bone felt near anterior region of orbit, behind trochlea and under frontal sinus; a drainage tube inserted. Hot fomentations applied. Headache severe. Quinine and gel-seminum given.

April 19th. Swelling less. Probe passes into frontal sinus, the roof of which feels diseased.

April 21st. Patient admitted to-day as in-patient. Abscess cavity irrigated. As there was difficulty in retaining drainage-tube in position, a double opening was made. Tube introduced at one opening and brought out at the other. The ends were then tied together.

May 25th. The discharge has steadily diminished; drainage-tube taken out since last entry; a small sinus remains leading down to bone; a fine piece of drainage tube still left in; patient discharged from the house.

September 25th. Sinus has diminished slowly in depth; no discharge; sense of smell returned.

December 29th. No pain nor headache; sinus quite closed.

August 18th, 1894. In reply to a letter, patient writes:—"I have been quite free from all headaches, and pains respecting my eyes."

This case closely resembles one reported by Dr. C. S. Bull, of New York. His patient had been struck, fourteen years previously, by a piece of wood; the wound healed rapidly.

Ten years after the time of the blow, an abscess formed, and pointed at the upper and inner angle of the right orbit, causing right ptosis. (This was not present in my case.) The abscess was opened, well irrigated, and a drainage-tube introduced. Patient was discharged cured in six weeks' time. (See *Ophth. Rev.*, vol. iv., p. 279.)

In both these the chief points to be noted are the length of time between the date of injury and the formation of the abscess; the chronicity of the latter—over a year in one, over three years in the other case; and the complete recovery from all symptoms when once thorough drainage was established.

For permission to publish this and the former case I am indebted to Mr. Eales.

PERISCOPE.

OBSTETRICS.

BY FRED EDGE, M.D., M.R.C.P.

In the *American Journal of Obstetrics*, July, 1894, Gill Wylie has some interesting remarks on the best method of operating on old lacerations of the perinæum; and the pith of his paper comes to view if we ruminate on the following statement and its bearings. "It is a fact that in almost all of the cases where the perinæum is completely ruptured, the tear extending into the rectum, the uterus will be found in good condition and not at all retroverted." This is explained as follows:—The perinæum may be divided into superficial and deep layers. The superficial layer consists of the transversus perinæi, bulbocavernosus and external sphincter ani, and the perinæal fascia; the internal layer consists of the levator ani and the pelvic fascia. (The internal sphincter is part of the levator ani.) The structures of the deeper layer are attached to the junction of the rectum and anus, and the action of the levator ani, through this

attachment, is to deflect the fæces backwards. It also prevents rectocele, and sustains on its span the bladder and anterior vaginal walls during defæcation, which causes the greatest strain on pelvic tissues apart from labour. Now, if the superficial portion of the perinæum is torn, it matters little; but if the inner part, where the rectum merges into the anus, is torn through, while the sphincter ani remains intact, then all the intra-abdominal pressure, instead of being deflected backwards, falls upon the unsupported anterior rectal wall, and rectocele with displacement ensues. The fundus falls back between the uterosacral ligaments, thus blocking the only passage for the fæces. The only relief is uterine prolapse. If the perinæum and sphincter ani are completely torn through, the fæcal matter passively escapes, and no rectocele and very little prolapse ensues, since there is no straining on defæcation with increased intra-abdominal pressure.

Wylie denudes instead of flap splitting. He comes to the following conclusions:—

1. When the perinæum is completely severed, so that fæcal matter escapes passively, the position of the uterus is not affected.
2. The outer or lower portion of the perinæum may be torn to a considerable extent, and the position of the uterus will not be affected.
3. When the inner or upper part of the perinæum is torn, or overstretched and relaxed, prolapse of the posterior and anterior vaginal walls will take place; in time the uterus becomes retroverted, prolapsed, and may be forced out of the pelvis.
4. The explanation is that when that part of the perinæum formed by the fibres of the levator ani and the pelvic fascia encircling the lower end of the vagina and rectum is torn apart, the lower ends of the vagina and rectum are forced out, and in time drag the uterus with them.
5. In operating, the separated edges of the levator ani and the pelvic fascia should be reunited in front of the rectal and anal junction, to support this part of the bowel and direct the resultant of the intra-abdominal pressure backwards.

6. This is best done by denudation of the retracted tissues on each side of the rectocele and uniting them over the rectocele. Since the chief lesion is intra-vaginal, the operation must be so also in great part.

7. Hæmorrhoids, fissures, or erosions of the anus or rectum are generally present with rectocele and retroversion. Dilatation of the anus is therefore indicated.

8. In combination with amputation of the cervix, and when retroversion is present, by doing Alexander's operation this operation is capable of effecting a radical cure.

Green, in the *American Journal of Obstetrics*, July, 1894, discusses the treatment of rupture of the uterus, and comes to the following results. Cases fall into three groups :—

1. Complete or incomplete tears of the lateral or posterior walls of the lower segment with adequate provision for vaginal drainage, with hæmorrhage absent or easily controlled, and with no intestinal hernia.

Such cases will often do well under simple palliation, with natural vaginal drainage, local antiseptics, general supportive treatment, and measures to promote and maintain firm contraction of the uterus.

2. Complete tears of the lower segment, or even moderate tears of the uterine body, with hæmorrhage controllable per vaginam with gauze pressure or partial suture where the child has partially passed through the rent, and where more or less blood clot and liquor amnii, and perhaps also the placenta have entered the abdominal cavity.

For this class peritoneal irrigation with weak antiseptics or sterilized salt solution, drainage with iodoform wicking or gauze, combined with general palliative measures would seem most appropriate.

3. Cases in which delivery of the child through the pelvis is impossible or inexpedient ; in which there is present hæmorrhage uncontrollable per vaginam ; in which the rents in the uterus are extensive, and of irregular, transverse, or ragged character. For such cases abdominal section is indicated. The propriety

of suturing the rents must be decided according to the condition of the uterus and edges of the tears; when the latter are very ragged and infiltrated with blood, when the uterus is friable and apparently septic hysterectomy promises better results than suture.

Noble in the same journal makes a strong point in favour of symphysiotomy, which perhaps has not received the attention it deserves. This relates to the mortality of premature children. Winckel has shewn that the mortality of premature children in the first year is 66·6 per cent. Symphysiotomy allows these children in many cases to go to full time before birth, and hence, apart from bringing them into the world alive, it gives them an opportunity of extending their visit.

At the International Medical Congress at Rome, Professor Leopold, of Dresden, gives the following conclusions as regards symphysiotomy. (*Annales de Gynécologie et d' Obstétrique*, 1894.)

1. Symphysiotomy, as formulated by Morisani, is a great clinical victory. But the operation should not be vulgarised. For the dangers it bears with it are very real, and in consequence it cannot replace perforation or even version with the general practitioner.

2. Primiparæ should not be subjected to symphysiotomy.

3. As regards the future state of women operated upon, there is as yet not time to pronounce definitely.

4. Hæmorrhage and vaginal lacerations command great prudence, and affect the after-treatment.

5. As a rule symphysiotomy is applicable to pelves of from 7·5 to 6·5, or perhaps 6 centimetres in the conjugata vera. These cases should be sent to the clinics. A general practitioner under the same conditions should think of the mother and perform perforation.

6. In contracted pelves of 7 centimetres, if the medical man is consulted in time, premature labour should be induced. If too late for this then let the labour proceed naturally, keep the membranes intact until the external os is fully dilated. If the labour does not end naturally it is still possible to deliver

children, at term of good size, with success, by version and immediate extraction if the following conditions are present: membranes intact, complete dilatation, and the use of Walcher's position. (The patient has her legs hanging over the side of the table.)

7. Exceptionally with these latter conditions all present and favourable, if version and forceps at the brim do not give any hope of effecting delivery, symphysiotomy may be used with these diameters.

Vinay (Charles) writes upon the *Etiology and Pathology of Puerperal Eclampsia* (*Archives de Gynécologie*, 1894).—The paper is really taken from the book which he is publishing upon the diseases of pregnancy. It may perhaps be well to give briefly the views and conclusions expressed. Commencing with Etiology and taking the predisposing causes first, it is seen that from 20 to 30 is the age with greatest frequency of attacks. Primiparæ are the subjects in 80 per cent. of the cases, and this is due to the slowness of labour, the increase of the intra-abdominal pressure owing to inextensibility of the parts, the too early engagement of the head which compresses the uterus, the greater frequency of albuminuria, and to the far greater reflex excitability in *débutantes*. Aged primiparæ are specially liable. Multiparæ are generally affected in the second and third pregnancy. Return in subsequent pregnancies is rare, as the percentage of primiparæ proves. Twin pregnancy predisposes to eclampsia, and Wieger shews that 1 in 13 twin pregnancies is complicated with eclampsia, whereas 1 in 260 is the ratio in single pregnancies. In 304 cases out of 311 the presentation was occipital. Contraction of the pelvis to a slight degree was found by Stallde in more than half of 40 cases. That heredity has something to do with its predisposition is seen from histories, such as one of a mother and four daughters. They all had eclampsia, and the mother and three daughters died of it. Epilepsy has a very doubtful influence, and the author says that he has never observed any predisposition to eclampsia in the patients who have come under his notice with epilepsy. Cold

winty weather predisposes very greatly towards eclampsia. Some have spoken of contagion and of epidemics, but with little grounds for their views.

The proximate causes of eclampsia puerperalis are the functional defects of the emunctories, the kidneys and liver especially. Parenchymatous changes of the kidney are of first rank in the causation of puerperal eclampsia for they are always found after death, and the urine is modified in quality and quantity. Albuminuria is a symptom of extreme importance. Compression of the ureters plays an important rôle in the etiology, and Löhlein has noticed that in 32 autopsies after eclampsia 8 had dilated ureters—25 per cent. ; while in 125 cases dying from other causes, only 3—2 per cent. were so affected. Stadtfelt found this condition in 9 out of 16 autopsies. The right ureter is more affected because of the right inclination of the uterus and the greater prominence of the common iliac artery on this side, the ureter being thus caught between the two. This helps to explain the frequency of eclampsia in primiparæ since in them the head engages in the upper margin of the pelvis towards the termination of pregnancy and before labour has begun. That compression of the ureters is not always present is certain, or how could post partum eclampsias be explained? But that it does take place during labour is absolutely proved by the use of the catheter when no urine can be drawn off, but immediately the labour is terminated the secretion of urine is copious.

How much lesions of the liver act in causing puerperal eclampsia we do not know exactly, but we know that some women have icterus, others have leucin and tyrosin in the blood and urine, and that the hepatic tissue is frequently found affected after death from eclampsia. Microbic agents have been described by several workers in the field, as Doléris, Blanc, Gerdes, Favre, Combemale, and Bué; but all differ. The two latter indicate the germ of suppuration, the staphylococcus pyogenes albus or aureus. The experimental attempts to produce eclampsia with the various germs found have, in some cases, resulted in producing convulsions, but not in

causing the hepatic and renal lesions found in puerperal eclampsia, and the symptoms have never presented an analogous course to those of the disease. Germs may perhaps produce puerperal eclampsia, but so far there is no proof.

Pathology.—How do these different elements act in provoking the expletion? Before Lever's discovery the theory prevailed that eclampsia was a neurosis produced by reflex irritation of the cerebro-spinal system. After his discovery the whole blame rested with the disturbances of renal function and the consequent intoxication by the products of disassimilation which ought to have been discharged. Although there is agreement as to this matter, when it comes to the actual nature of the true agent there is the greatest divergence of opinion.

The successive criminals have been urea (Wilson), the transformation of urea into carbonate of ammonia (Frerichs and Treitz), the extractives (Schotten), the colouring matters (Thudichum), the potassium salts (Feltz and Ritter), and, lastly, the very water which transudes in the brain, causing oedema and anæmia of the brain (Traube and Rosenstein). All these authors have selected constituents of normal urine, but Stumpf has named acetone.

These theories have all failed in practice, since none of the materials—urea, colouring matter, salts of potash—have been found in excess in the blood or tissues of uræmic cases, and experiments have shewn that when injected in excess, not one of them is capable of producing uræmic symptoms. The diabetic theory is untenable, since glycosuria is by no means a constant phenomenon, and it is also striking that in eclamptic convulsions and coma the temperature generally rises, whereas in diabetic coma it sinks sometimes as low as 86° F.

Bouchard has introduced instead of these comparatively simple theories the one of auto-intoxication by matters, not only arising from metabolism (its disassimilative part), but also by toxic matter from a certain number of secretions formed by digestion and intestinal putrefaction. Among these are bodies raising and lowering the temperature, convulsives, sialogogues and con-

tractors of the pupils. By experimenting with the urine and serum of eclamptic patients Chambrelant has found that as regards the urine it has lost almost all its toxicity on rabbits, as compared with normal urine, whereas the serum is much more toxic than normal serum. It must be remembered that this is the same with the like fluids in pregnancy, but only to a very limited degree, and it is when the toxicity of the serum passes a certain stage that convulsions take place.

Some have declared that albumen was absent from the urine in a great percentage of cases (29 per cent. Brummerstadt, 20 per cent. Depaul), but these stand alone, and the author thinks that there is about one case in a hundred without albuminuria, but that there are many cases in which at one time or another albumen is not found in the urine.

In trying to find the toxic agents, success will attend the investigation of what matters are absent from the urine, and not in trying to find what poisons are in the urine. The general toxicity of the body varies greatly according to the state of working of the liver and intestines; and whenever these are impaired, especially the liver function, poisons enter the system and are eliminated by the kidneys. But even though the kidneys be normal, should the volume of toxic matter be too great, they of necessity cannot remove it. In the one case where albuminuria was not found, acute yellow atrophy of the liver was present.

The problem of eclampsia is not one of the more or less normal composition of the urine, nor of the presence or absence of albuminuria, nor even of the integrity or disorder of the kidneys, but it is one of auto-intoxication, and of sufficiency or insufficiency of the excretory organs. The germ theory may be looked upon as a part of Bouchard's theory, only the poisons are supposed to be caused by microbes which gain entrance through the uterus, which has suffered from endometritis or otherwise.

This does not fall in with the facts that eclampsia is commonest in primiparæ, in head presentations, and with twins.

It is possible that since certain cases of nephritis (scarlatinal) are infectious, eclampsia may be infectious in some grave cases; it is doubtful that it is always so; it is above all doubtful that the agent is of one variety, and that any such thing exists as a specific microbe of eclampsia.

REVIEWS.

THE PHYSIOLOGY OF THE CARBO-HYDRATES.*

THE first two publications, which we propose to consider and compare in the light of other researches, are singularly opposed to each other. While Dr. Noël Paton was writing his paper in which he states that "the theory of Pavy, repeated in nearly every text-book, that the liver is a sugar-destroying and not a sugar-forming organ rests on so unsubstantial a basis and has been so completely refuted by the work of Seegen and other investigators that it need not be considered," Dr. Pavy was busy preparing for the press the substantial octavo volume in which he reaffirms his former opinions, recapitulates his old evidence, and relates recent experiences which he believes support his views and throw a new light upon the very difficult question of the relation of the liver to the formation of sugar. In order to lay the matter as clearly as possible before our readers, a brief retrospect of the subject is indispensable.

As long ago as the year 1848 Cl. Bernard discovered that the liver of carnivorous as well as herbivorous animals contained

* 1. The Physiology of the Carbo-hydrates; their Application as Food and Relation to Diabetes. By F. W. Pavy, M.D., LL.D., F.R.S. London: J. and A. Churchill. 1894.

2. Philosophical Transactions of the Royal Society of London, vol. 185 (1894) B., pp. 233-277. On Hepatic Glycogenesis. By D. Noël Paton, M.D., B.Sc., F.R.C.P. Ed. London: published for the Royal Society by Kegan Paul, Trench, Trübner and Co. 1894.

3. A Contribution to the Study of the Influence of Fever on Hepatic Glycogenesis. By D. Noël Paton, M.D. Edinburgh Hospital Reports, vol. ii.

sugar, and this was confirmed by Frerichs and Schiff. This discovery suggested that sugar was formed in the liver, and this idea was supported by the results of experiments which shewed sugar to be present in the blood of the hepatic vein and absent in that of the portal vein (Bernard, Lehmann). It was also found that when the liver was washed out by a stream of water passed through the portal vein until all the sugar had disappeared, and the organ set aside for some time, sugar was again formed in it, so that Bernard believed he was justified in the opinion that the formation of sugar is a physiological process and a function of the liver. In 1859 the same great physiologist isolated a substance from the liver which could be converted into sugar by boiling with mineral acids, by the action of saliva, pancreatic juice, blood serum, and cold watery liver extract; and to this analogue of starch and dextrine he gave the name of *glycogen*. According to Bernard, the sugar derived from the liver was poured into the blood, and reached the right side of the heart and thence the lungs. In the lungs it was burnt up, so that the arterial blood was free from sugar. These observations were confirmed by many observers; but Pavy, who was at first an ardent follower of Bernard, found that the blood obtained by a catheter from the right side of the heart of a *living* animal contained hardly a trace of sugar, although that found in the heart of an animal after death shewed abundant sugar. After numerous experiments, he came to the conclusion that the conversion of the so-called glycogen into sugar *was a post mortem process*, and he endeavoured to prove this by subjecting the liver to such a high or low temperature immediately after the animal was killed as would check all such changes. Experiments shewed only a trace of sugar in the portions of liver so treated, while the remainder of the organ left in the body, in half an hour gave an extract which reduced Fehling's solution very freely. These experiments were repeated by Meissner and Ritter, and the latter found that portions of liver excised from the living animal and plunged at once into boiling water, contained no sugar. He also found that the blood of the right

heart, obtained from living animals, contained no more sugar than the arterial blood. McDonnell found that the liver of a hedgehog slowly frozen to death was quite free from sugar. Pavy compared the *post mortem* conversion of glycogen into sugar with the coagulation of the blood, and he and others believed it to be brought about by the contact of the blood with the glycogen. He found that when glycogen was injected into the circulation, the amount of sugar in the blood was rapidly increased.

In 1877 Bernard communicated to the French Academy a new series of experiments. In opposition to his critics he demonstrated sugar in portions of liver removed from living animals, and gave the exact amounts, viz., 0.23—0.24 per cent. He characterised the experiments of his opponents as beset with errors, and denounced their methods as insufficient to detect small quantities of sugar. In a second communication he explained the transformation of glycogen into sugar as the work of a diastatic ferment which he extracted from the liver. Dalton confirmed Bernard's discovery of sugar in the liver of living animals and estimated it at 0.2—0.4 per cent. Pavy replied by contending that Bernard used too little boiling water in his experiments, so that the water was cooled by the liver, but he repeated the experiments and found 0.02 to 0.06 per cent. of sugar, which he regarded as due to accidental conversion of glycogen. According to Bernard sugar production is a physiological process; according to Pavy it is a morbid process if it occurs during life, and is for the most part a *post mortem* change. The discovery of the constant presence of small quantities of sugar in normal blood necessitated some change in Pavy's views, while the followers of Bernard have not adopted his conclusions entirely, for the so-called liver ferment has been proved to be nothing more than may be extracted from all animal tissues—muscle, blood, etc., but the great majority of physiologists have accepted the view that sugar formation is a normal function of the liver.

We are now in a position to follow Dr. Pavy's recent

researches. His book commences with a sketch of the chemical constitution, characters and relations of the various carbo-hydrates, and special stress is laid upon the value of the crystalline combinations (osazones) formed by sugars with phenylhydrazine, by which the presence of very minute traces of sugar may be demonstrated. After a short description of the changes in the carbo-hydrates dependent upon hydration and of the various organised and unorganised ferments which produce these changes he discusses at some length the constitution of glucosides, or those bodies which by cleavage yield sugar, and he contends that ordinary proteid matter possesses this property; he shews that by the action of potash on proteid matter a non-reducing product can be formed resembling Landwehr's animal gum, and that by boiling this with dilute sulphuric acid a substance is obtained which reduces copper and forms crystals of osazone, although it does not ferment and is optically inactive; a similar product is obtained from peptonised egg albumen after removing its sugar by successive extractions with boiling water. He next traces the changes which occur in the digestion of starch and other carbo-hydrates, pointing out that the effect of the digestive amylolytic ferments is to form *maltose*, but in the blood of the portal vein the sugar appears as glucose. The amount of glucose in the portal blood is diminished by fasting and increased by food, diminished by animal food, increased by a diet rich in carbo-hydrates. He then proceeds with his argument that the liver acts by stopping the passage of this sugar into the general circulation; he states that the portal blood contains 1.5, 2, 3, 4, or even more sugar per 1000, while the blood of the right heart contains 0.6 to 1.0, or a little over 1.0 per 1000. In passing we must point out that this is directly opposed by Seegen* who in a series of sixty-four observations of the amount of sugar in the portal and hepatic venous blood shews that the latter contains on an average from 80 to 100 per cent. more sugar than the former, and that this excess is lowest when the food consists of dextrine and sugar and greatest when

* J. Seegen — *Der Diabetes mellitus*, p. 21. Berlin, 1893.

the diet consists of meat, although the actual amount of sugar present is of course much greater in the former case. Although Pavy states that the sugar of the portal vein is glucose, his analyses shew that it possesses a lower reducing power; he appears to hold that the conversion to glucose is a gradual process, commencing in the intestine and completed in the blood under the influence of some hypothetical ferment.

Pavy further argues that the great increase in the relative weight of the liver in animals fed on carbohydrates proves that these substances accumulate in the liver; and, in fact, the amount of glycogen obtainable from the liver of such animals is ten or twelve times greater than in fasting animals, while the liver itself becomes soft and pale. But it has been shewn that sugar may be formed from animal food, and he thinks that the action of the liver cells is to dehydrate or transmute into glycogen, or otherwise convert all the sugar that reaches the liver from whatever source.

In approaching the important question of the relation of the liver to sugar, Pavy admits that it contains a certain amount, which he gives (on page 186) as about 2 to 3 per 1000, a figure rather in excess of Cl. Bernard's, although he shews that this is greatly increased by allowing a short time to elapse before the liver is examined, a fact admitted by all experimenters; and, as we shall see, the cause of this *post mortem* increase is dealt with by Dr. Noël Paton. According to Pavy, this formation of sugar corresponds closely to the disappearance of glycogen (Table, p. 150), and in this he is supported by Boëhm and Hoffmann* and by Girard,† though opposed by Seegen‡ and Kratschmer.

The next important research is on the amount and nature of the sugar present in the blood, which he gives as about 0.6 to 1.0 or a little over 1.0 part of glucose per 1000. He refers to his old experiments to prove that the quantity present in venous and arterial blood is practically the same. He confirms

* Pflüger's Archiv., vol. 23.

† Ibid., vol. 41.

‡ Op. Cit., p. 13.

the fact that sugar diminishes in drawn blood, but he does not admit that this has any physiological importance.

Passing on to the urine, he proves by the phenyl-hydrazine method the now generally admitted fact that normal healthy urine contains a trace of sugar, which can be demonstrated by concentrating a large quantity. He believes the amount is about, or a little over, 0.5 per 1000. In experiments on rabbits, by injecting glucose and lævulose into the blood in the proportion of 1 gramme per kilo. of body weight, both substances were freely, and to about the same extent, excreted with the urine.

Following this are sections affording proof of the presence of sugar in the various tissues and organs of the body—muscle, spleen, kidney, lung, brain, etc., and in the egg of the domestic fowl.

The carbo-hydrate derived by cleavage from proteid matter is regarded by Pavy as closely related to, but not identical with glycogen, but as these bodies are met with together he calls them *amylose carbohydrate*. He gives tables of the amount of this material met with in the various tissues of certain animals.

In conclusion he contends that the liver contains no more sugar during life than other tissues, that he has shewn that the blood flowing from the liver contains no more sugar than that passing to it, and that arterial and venous blood contain the same amount of sugar, so that there is no evidence of sugar being formed in the liver or destroyed in its transit through the systemic capillaries. On the other hand he thinks he has proved that the liver stops the sugar from getting into the blood; and he points out that as there is no difference in the quantity of sugar present in the blood of carnivorous and herbivorous animals, the latter must on the glycogenic theory accumulate far more glycogen than they can get rid of as sugar, whilst there must be some limit to the storing-up process, therefore it is evident that the carbo-hydrate leaves the liver in some other form. In diabetes this arresting process fails, and sugar passes directly into the circulation, and this in part accounts for the sugar met

with, but in addition he assumes the presence of a ferment sugar formed by "wrongly splitting up the glucoside proteids of the body." He advocates in principle strict abstention from all carbo-hydrate food in diabetes, but admits in practice that this restriction "should not be carried further than is necessary," although his measure of necessity is the state of the urine and not the general condition of the patient as some authorities have maintained not altogether without reason. Respecting the disposal of the carbo-hydrates in health, he believes they are transmuted into glycogen, used up in the formation of proteid, and transformed into fat. Under the latter heading he relates some extremely interesting experiments on rabbits which seem to shew that starchy food may be directly converted into fat before it reaches the lacteals. Microphotographs of the villi from a fasting rabbit and from one four hours after a meal of oats are given side by side in order to illustrate, as is well done by osmic acid staining, the rich infiltration of fat in the epithelial cells of the latter. Dr. Pavy suggests that the cells of the villi share with the parenchyma of the liver the power of converting carbo-hydrates into fat, and he regards this function as the main protective agency which preserves us all from becoming hyper-glycæmic; if by any cause this function is deranged, as it might be by some "vaso-motor disturbance in the splanchnic area," diabetes is set up.

Dr. Noël Paton starts by saying that no physiologist will deny that one of the great functions of the liver is to produce sugar; and he proceeds to put the question—What is the relation of hepatic sugar to glycogen? He answers this by asserting that the balance of evidence is conclusively in favour of glycogen being the forerunner of sugar. He then proposes three series of enquiry:—

1. From what and how is glycogen formed in the liver?
2. How is it related to the protoplasm of the liver cells?
3. Into what kind of sugar is it changed, and how is the conversion brought about?

He regards, with Bernard, the formation of glycogen as a vital

function, in the course of which the progenitors of glycogen first become part of the living protoplasm of the cells; but he, in common with many other physiologists, does not accept the view that the formation of sugar out of glycogen is merely a chemical process resulting from the action of ferments. Ferment sugar is maltose, but liver sugar is glucose.

Adopting the hypothesis that the formation of sugar is a vital function of the liver cells, he has carried out experiments to determine the rate at which the glycogen disappears and glucose is formed, and the results go to shew that these changes take place for the most part during the first half-hour, that the rate diminishes steadily during the first hour, and after two hours proceeds at a very slow rate. Further experiments with liver tissue, in which the cells were destroyed by rubbing up with sand, shewed a very marked diminution in the conversion of glycogen. The changes appeared to be divisible into two stages—an early rapid stage, associated with disintegration of the liver cells, and a later slower stage. This first stage was increased by chloroform, which did not affect the second. This is apparently due to the chloroform accelerating the katabolic changes in the liver cells. A similar action, more or less, was noticed with ether, pyrogallie acid, and salicylate of soda; but no such effect was observed with morphine, amyl nitrite, or curare. During the early stage glucose is formed; but during the later, intermediate products, such as dextrine and possibly maltose, also are formed. He concludes that the early amyolysis is due to the vital action of the liver cells, analogous to that by which mucinogen is converted into mucin, or zymogen into zymin; while the later changes are due to the development of a soluble ferment or *zymin*. The acid which develops so freely in the liver *post mortem* has nothing to do with either the early or late amyolysis. The zymin of the later stage is probably formed in the disintegration of the cells.

In the paper on the influence of fever on hepatic glycogenesis, Dr. Paton shews that diminished heat elimination, caused experimentally in animals, increases glycogenesis, but

that the introduction of the products of the growth of micro-organisms into the circulation is attended by fever and diminished glycogenesis. It has been often observed by the bedside that glycosuria disappears during the course of specific fevers; and Bernard noted the absence of glycogen and sugar in the livers of fever patients.

These researches have not settled the question whether during life the liver does or does not form glucose. If it does not, we may ask where is it formed? To this, Pavy's answer is, in the intestine and blood, under the influence of a supposed ferment. We have already noted Pavy's observation that the sugar of the portal blood is almost identical with glucose; this needs confirmation, and the theory is opposed to Noël Paton's dictum that ferment sugar is maltose or something of equally low reducing power.

Pavy has left a gap in his argument by failing to meet Seegen's elaborate and numerous observations on the increase of sugar in the hepatic vein, as it appears to us that his analyses of the blood of the right side of the heart are too few and inconclusive to do this. He has also had to admit that the liver may form a certain amount of sugar, but we think he has much force on his side when he points out the impossibility of accepting the current explanation of the ultimate disposal of the carbo-hydrates of the food. As already stated, the blood of herbivorous animals contains no more sugar than that of carnivorous animals although the amount of glycogen found in the liver is in the former case much greater than the latter. Part of this must, as Pavy suggests, become used up in some other way; and although he has not proved it to be true, his suggestion that part goes to form fat and part is directly converted into proteid is not unreasonable. It does not seem a satisfactory way out of the difficulty to content oneself, as Michael Foster does, with suggesting doubts of the accuracy of the quantitative analyses of the blood, as such reflections obviously apply to both sides of the controversy.

Unfortunately these investigations leave the various questions

concerning the pathology of diabetes very much where they were. We have still to fall back on the unproved hypothesis of a vaso-motor or other nervous disturbance as the starting-point of the functional derangement. They do not explain why diabetics manufacture sugar in such abnormal amounts from proteid food, or from their own tissues, and they nowhere seem to come into touch with the clinical facts of diabetes.

LUNATIC ASYLUMS: THEIR ORGANISATION AND MANAGEMENT.*

THIS book aims at a systematic treatment of a most important and peculiarly specialised subject—the general management of the insane, and the administration of lunatic asylums. Dr. Mercier has by this venture been the first to draw up a treatise for the guidance of asylum superintendents, and he very clearly and ably formulates certain principles which have up to now been merely traditional. The work which falls to the share of every asylum manager, it may be as well to acquaint the general medical reader, bristles with minutiae pertaining to almost every branch of estate management, of commissariat provision, of architectural and sanitary survey, of special protective measures for the care, safety, and treatment of those under his charge, so that every opportunity may be afforded each individual patient of recovery or improvement or, if that be not possible, of detention for his own good and the good of the community; while, at the same time, he is bound down by stringent rules and regulations for the proper observance of his legal duties. A medical superintendent's life is therefore not the *dolce far niente* existence many of our medical brethren credit him with; and the work before us is one the want of which has long been felt, and will be cordially welcomed by asylum officers, to whom it specially appeals.

* Lunatic Asylums: their Organisation and Management. By Charles Mercier, M.B. London: Charles Griffin and Co. Lim. 1894.

The author very properly holds before himself, like every other alienist who has at heart the welfare of the insane, an ideal, the individualisation of treatment of the mentally afflicted, an ideal which it will take years, we fear, to realise so long as authorities will persist, in the face of the most urgent protests, in the erection of huge barracks instead of special small asylums for the treatment of the insane. By all means let us allow chronic cases and demented to be drafted into these overgrown edifices at present; but we are seriously of opinion that recovery rates would rapidly rise were cases for treatment and cases for detention differentiated. But it is evidently futile to expect such a reactionary movement so long as official sanction continues to be given to the establishment of these caravanseries, which are neither architecturally beautiful nor scientifically serviceable.

The book in its general scope is limited to a consideration of the needs of public asylums only. We think Dr. Mercier might have extended its usefulness by not only making special reference to private asylums and hospitals, but also by additional chapters on the lunacy laws of Scotland and Ireland. The work would then have appealed to a wider section than it does at present.

Taken as a work of reference—for such are its pretensions—it lacks detail in some important matters (*e.g.*, the section on asylum construction, which, though we already possess the elaborate work of Burdett, merited more than a brief dismissal), while it deals too fully and argumentatively with contentious points. The minutiae pertaining to the daily routine work of the heads and subordinates in asylums are however systematically treated in a useful manner, the opinions there set forth being the carefully arranged results of the experience of numerous superintendents in bygone years. In many of his concisely arranged tables as to statutory duties, the author is not always correct, and there is frequent evidence to shew that the greater part of this has been drawn up solely from memory. It may appear hypocritical to remark in detail on some of

Dr. Mercier's omissions and statements, but we think some good may be done to the next edition of what promises to be a most useful work if we draw attention to certain points.

No mention is made (p. 12) of the system of open door ward management, nor is attention drawn to a lately devised method of placing a door handle on the outside only of ward doors, the exit from the ward having to be effected with the ordinary spring-lock key (this is however mentioned later on as being convenient for single rooms); this does away with the objection which must always be raised against keys from the outside, that much time is wasted on urgent occasions in getting into a ward. It is also a plan worth adopting in dormitories where at the usual night-round the visiting attendants will often wake half the patients by fumbling with the locks. Under the head *Lighting* (p. 16) no mention is made of the efficacy of the newer forms of incandescent gas burners where electric light cannot be established.

With regard to the water supply of asylums (p. 17) it surely might be urged that every asylum, public and private, should have connection with a constant supply from reservoirs even though the daily supply be taken from wells, for institutions like these should never be dependent on well supplies only; the initial outlay would of course be great, but expense is not usually a stumbling block to the commissioners: and in the case of fire, when the necessity for a long-continued supply of water in large volume may arise, the absence of connection with a main will be severely felt. In mentioning the form and shape of bedcastors in dormitories no reference is made to the newly-devised ball and socket castors working on ball bearings. These are far more serviceable and durable than any form of wheel castor. Facilities for self-seclusion, as noted in a remark on page 33, should not receive encouragement; we are aware that the practice obtains in many asylums, but it is one to be deprecated for many reasons.

The best material for baths in asylums is undoubtedly the Stourbridge ware; the Commissioners always recommend them; but no mention is made of their utility. Dr. Mercier regards

the wash-out and short hopper as the best forms of water closets, for the one reason, amongst others, that the closet "can be used as a slop sink;" this it need hardly be said is a most insanitary dictum for reasons (*e. g.*, the accumulation of grease, hair, etc., in the bends of the soil pipes, the damaging effect of hot water, etc., on the fittings) which can easily be appreciated. His objections to automatic flushing arrangements are easily met; their now constant employment in public lavatories has improved the mechanism, while it is absurd to suppose, as Dr. Mercier holds out, that every patient will be benefitted mentally by pulling at a flushing-wire. Staircases (p. 49), as the author says, should not be of stone but of wood, and we may add, should be properly protected either by ornamental woodwork or brass wire fendering; the step portion should be roughly parqueted, the wood fibre running vertically. The offensive smell pervading kitchens and sculleries during the boiling or steaming of vegetables (p. 51), especially cabbage, may be obviated by dropping into each cauldron a piece of coke. The information as to stores and workshops is scanty, and under the heading of Offices no mention is made of electrical or other means of registering the whereabouts of the superintendent or medical officers during the day—such a plan is of great service in large asylums, urgent summons being of frequent occurrence.

The seats in airing courts (p. 59) might with advantage be made reversible, so that after rain some portion may at least be dry for use, and the walks might be asphalted instead of being laid out; but the whole airing court system is obnoxious and should not be permitted in any new institution. The chapters on Food and Clothing are good, but the dietaries in English asylums do not at all compare favourably with such as are found in French, Dutch, and German asylums. The system of payment to working patients by tokens having a monetary face value is an eminently good one, and the method as formulated by Dr. Nicolson, of Broadmoor, is one that might with advantage be followed in every large asylum. The chapter on amusements is well and fully written.

In the chapter on Detention the author, in his anxiety to proscribe the tendency to undue restriction of the insane which he rather hastily assumes exists in all asylums, enters into various sweeping statements deduced apparently from somewhat limited observation, *pace* his remark (p. 123) that he is "not speaking without experience in the matter." He instances the asylum to which he is attached, in which he has been able to allow 50 per cent. of the patients out on parole without any untoward result as an example of what can be done by trying, but he forgets to mention that this is an asylum limited to males only, and to private well-to-do patients, and that his paraded result comes at the widest computation to only 16 patients as the number he can allow on parole. His results therefore can hardly be compared with what obtains in a large asylum where the patients are all paupers, are to the extent of about 60 per cent. females, and to the number of 80 per cent. of low moral character—the amount of trouble, anxiety, and undoubtedly scandal that would accrue in at least half of the number of cases allowed out on parole would not redound to the credit or reputation of the medical superintendent, who, it must be remembered, is not in the enviable position of the proprietor of a private house, his own master, but is answerable to the public for the proper conduct and care of his patients. We should all rejoice to see Dr. Mercier's plans carried out, but they are too Utopian except for a specially selected class of patients.

In the section entitled Care of the Insane the author's remarks on supervision of suicidal cases are good, but he might have mentioned that a frequent change of special attendance is by far the best plan of ensuring the safety of a suicidal case. He would prohibit the use of razors in asylums, which we think somewhat too severe; attendants must be taught the necessity of unceasing caution. With his remarks as to non-seclusion treatment of the violent insane we cordially agree, but (p. 138) where he says "assaults made by the unaided hands are not as a rule dangerous" we beg to differ.

We cannot offer many remarks on the succeeding sections without entering into contentious matters. On the whole, the chapters on *The Staff of Asylums* and the duties of the various officials are well and carefully written. But we wish to draw attention to a portion of the book which will be referred to more than any other, perhaps—that including the chapter on *Statutory Duties* (p. 210), which, from the very nature of the subject, should be unimpeachable in its accuracy; and here we find the author when called upon to deal with duties pertaining to private metropolitan asylums fairly correct, but inaccurate and slipshod in his matter when treating of private asylums under the authority of visitors, and of public asylums.

Shortly to note the defects: The section on the methods of admission of pauper patients is short and badly framed. We cannot find any authority for Dr. Mercier's statement on p. 228, when speaking of continuation orders, that "if the superintendent finds it more convenient to deal with the continuation orders in the mass quarterly, than in detail daily, he can apply to the Commissioners for an order accordingly." Throughout his tables of duties he speaks of the "four weeks' notice of private patients" when he is referring to the report required "at the expiration of one month." On page 238 he says that "in every licensed house a statement and application for renewal of the licence annually" is to be made "to the Commissioners," which is wrong. This refers only to metropolitan houses. Also that "in every institution notice of engagement and dismissal of attendants" is to be sent "to the Commissioners," which is also wrong. This only refers to metropolitan institutions; and other asylums, etc., are only required to send notice after dismissal for misconduct.

On page 241, under the heading of "Consent of Authorities in certain cases," he says that the consent of the Commissioners or a Commissioner is required for leave of absence of private patients, whereas the Act, sec. 55, sub-sec. 4, distinctly says that "in the case of a house licensed by justices (the consent is required) of two of the visitors." On pages 276 and 277 he

mixes up the duties of Clerks to the Visitors with those of Clerks to Asylums, and on page 276 he remarks that "the only book in which the Commissioners usually make entries is the Visitors' Book," which is not correct. On page 225 Dr. Mercier thus belauds Continuation Orders. "This most admirable and salutary enactment has excited much discontent among the superintendents of asylums, but it is, in my opinion, the most important and the most beneficial of all provisions of that Act." Exactly so. That is the view one would take where the number of continuation orders is small; but where they mount up to hundreds per annum they become a grievous infliction, the "discontent" not being by reason of the enactment, but because of its absurd arrangement.

On page 253 Dr. Mercier says: "The use of forceps sometimes leaves permanent damage to the brain." We thought this matter had long ago been settled when Dr. Fletcher Beach disproved the statements of Winkler and Bollaen, made in the same reckless fashion.

As champion of Assistant Medical Officers and Attendants, Dr. Mercier overdraws and exaggerates their hardships. The concessions to attendants noted on page 287 have been granted by the writer; but these even have not served to still their restless nomadic spirit, and then when they have left and find occupation scarce, there comes the usual application to be taken back.

Throughout the book, where opinionative subjects crop up, Dr. Mercier with *trop de zèle* overdraws his pictures. His earnestness and desire for improvement are evident, but they override his accuracy at times. The book is written in a taking style. Here and there may be found some common grammatical lapses, and the offending term "melancholics" for melancholiacs is ever in evidence. The index is meagre.

SIR WILLIAM GULL'S WORKS.*

It is satisfactory to find that the New Sydenham Society, whilst issuing many books of the greatest importance from the point of view of modern science, still occasionally concerns itself with the publication of works which, though once up to date or even in advance of their times, are now largely of historical interest. Of such nature are the collections of papers by Addison, Colles, and Latham, which have been in previous years published by this Society; and to this list must now be added the volume of Sir William Gull's writings which we have recently received. Whether such a book will attract a large number of readers we may fairly doubt; but it is none the less of importance that papers of historical value like many of these should not be lost.

The papers are collected under the headings of the various systems to which they refer, those dealing with the Nervous and Vascular Systems forming more than two-thirds of the book. Some few of these—markedly those on abscess of the brain and aneurisin of the cerebral vessels,—are in no way behind the times; but the majority of those on the nervous system, at any rate, illustrate very forcibly the advances that have been made of late in our knowledge of the pathology and diagnosis of these ailments. Equally, we must confess, do they emphasise our absolute lack of progress in the matter of their treatment. Fortunately, however, for the present-day reader, many of the papers contain a great mass of purely clinical work; and the large number of cases quoted in full renders the series of papers on paraplegia of real value, in spite of the curious confusion of diseases, from alcoholic neuritis to chronic cervical meningitis, obviously included under that name.

The section on the vascular system contains some of Sir William Gull's well-known work on the vascular changes in

* A collection of the published writings of William Withey Gull, Bart., M.D., F.R.S., Physician to Guy's Hospital. Edited and arranged by Theodore Dyke Acland, M.D., Physician to St. Thomas's Hospital. London: The New Sydenham Society. 1894.

chronic renal disease; whilst in other sections will be found this description of a "cretinoid state supervening in adult life in women," and an early account of a case of syringomyelia. A paper on cases of rheumatic fever "treated for the most part by mint water" is interesting, as shewing the present generation what that disease is capable of when left to itself, and as inducing a spirit of thankfulness that the days of untreated rheumatic fever have permanently passed away.

In conclusion, we must not omit to notice that, with all its errors of pathology, this volume is a splendid testimonial to Sir William Gull's accuracy of observation, depth of insight, and acute powers of reasoning, no less than to the energy and patience with which he prosecuted his researches.

THE BLIND AS SEEN THROUGH BLIND EYES.*

MAURICE DE LA SIZERANNE has done so much for his countrymen and fellow-sufferers, that we are glad to see the translation by Dr. Park Lewis of this interesting little book, and cordially wish for it a wide circle of readers. The good print of this volume issued from the *Knickerbocker Press*, enables us to look forward to this result as more than probable, since the style in which the book is issued shews a marked, and under the circumstances, a thoughtful consideration for those not included in its title.

To those who are ignorant—and we fear there are many such—of the system under which the blind are trained and educated at the present day, the social intercourse they enjoy, and the brightness and activity of their mental faculties, this book will be a revelation. From personal experience, however, of the culture possessed by many who have passed through the training as carried out in the colleges and schools for the blind in this country, we can vouch for the fidelity of the author's descriptions, which are not

* "The Blind as seen through Blind Eyes." By Maurice de la Sizeranne, translated by E. Park Lewis, M.D. London: G. P. Putman's Sons.

in the least overdrawn ; and written as they are by one who for more than twenty years has studied and striven for his fellow-sufferers, they bear the stamp not only of reality, but of a devotion so earnest and so full of kindly feeling that they cannot fail to touch the sympathies of the public. Mons. de la Sizeranne makes a great point of the fact that in ordinary friendly intercourse the blind enjoy being treated as if they possess the power of vision, and we recollect that this was the keynote of an admirable lecture delivered by the late Henry Fawcett, in which he pointed out that to make any distinction, although it may be intended kindly, serves really to draw attention to their deprivation. Count d' Haussonville in writing the introduction to the French edition of this work, said : "this is not only a good book, it is a good deed," and we quite agree with the statement.

DISEASES OF THE NOSE AND THROAT.*

THIS volume—one of Messrs. Lewis' Practical Series—has been sent us, and we have read it with interest and pleasure. The author begins by an apology for adding another to the already long list of works dealing with these diseases, but we are sure no apology is needed, for considering its moderate size, no work which we have hitherto read on these subjects gives so complete and systematic an account of them.

It is divided into three parts—1. Diseases of the Nose and Accessory Sinuses ; 2. Diseases of the Pharynx ; 3. Diseases of the Larynx ; and each paper is prefaced by a short chapter on the descriptive anatomy of that region. Treatment is given in some detail, and the various therapeutic measures and operative procedures well described. A free reference is made throughout to both English and foreign authorities, and an index of the authors quoted is given in the index.

The book is well illustrated, and altogether is a welcome addition to the literature on the subject.

* Diseases of the Nose and Throat. By F. De Havilland Hall. M.D., F.R.C.P.

New Inventions, Drugs, etc.

MESSRS. OPPENHEIMER send us several samples of their "*Bi-Palatinoids*," amongst which we especially notice useful preparations of Ferrous Carbonate and Arseniate, and Ferrous Phosphate. A combination of Cascara Sagrada, Euonymin, and Podophyllin is also included, and should prove a convenient laxative. The same firm also submit a sample of "*Ergole*," a new preparation containing all the active principles of Ergot in an unchanged and concentrated form, but from which all the inert and irritating constituents have been removed. It is claimed for this preparation that it may be kept for a prolonged period of time without undergoing decomposition.

FROM MESSRS. BURROUGHS & WELLCOME we have received samples of three recent additions to their list of "*Tabloids*"—consisting of Bismuth Salicylate ; a mixture of Pepsin, Bismuth, and Charcoal ; and a preparation of Iron, Strychnine, and Quinine, based on the formula of Easton's Syrup, respectively. The first and last of these preparations should be widely used ; in the second—an extremely good combination—we scarcely think that the dose of charcoal and bismuth is sufficiently large to prove of much service, unless a considerable number of tabloids be taken at once. The tabloids should, however, prove useful in mild cases of dyspepsia.

MESSRS. BURROUGHS & WELLCOME also send us a sample of a newly introduced antiseptic. "*Diaphtherin*" consists of two molecules of Ortho-Oxychinoline, one molecule of Carbolic Acid, and one of Sulphuric Acid, and is a sulphur-yellow powder of slight and inoffensive odour. It has been shewn by the experiments of Professor Emmerich and Dr. Stabel to possess very powerful bactericidal properties ; whilst it is free from the caustic action of carbolic acid, and from the toxic effect of oxychinoline alone. It has been found to be without poisonous effect when used in such quantities as are alone necessary for therapeutic purposes.

THE LINK SHELL TRUSS COMPANY have sent us a specimen of their new *Truss*. We are particularly pleased with the pad, which is hollowed out and shell-like in form, very light, and slightly movable laterally. The arrangement of the jointed spring is ingenious and gives increased adaptability. We would suggest that it be covered with chamois leather instead of jean, and that an "understrap" would be an advantage.

New Books, etc., Received.

- Lunacy Law for Medical Men. By CHARLES MERCIER, M.B., Lecturer on Neurology and Insanity, Westminster Hospital Medical School. London: J. and A. Churchill. 1894.
- Medical History from the Earliest Times. By EDWARD THEODORE WITHINGTON, M.A., M.D. Oxon. London: The Scientific Press Limited. 1894.
- A Practical Manual of Mental Medicine. By Dr. E. REGIS, Physician of the Maison de Santé de Castel d'Andorte. Translated by H. M. Bannister, A.M., M.D. Second edition. Utica, N.Y. 1894.
- Prescribing and Treatment in the Diseases of Infants and Children. By PHILIP E. MUSKET, Late Surgeon to the Sydney Hospital. Third edition. Edinburgh and London: Young J. Pentland. 1894.
- A Text-book of Pathology, Systematic and Practical. By D. J. HAMILTON, M.B., F.R.C.S.E., F.R.S.E., Professor of Pathology, University of Aberdeen. Vol. ii., Parts 1 and 2. London: Macmillan and Co. 1894.
- The Relationship between the Occurrence of Diphtheria and the Movement of the Subsoil Water. By MATTHEW A. ADAMS, F.R.C.S.
- Differential Diagnosis of Alcoholic Coma from other forms of Coma. By LEWIS D. MASON, M.D.
- Transactions of the Grant College Medical Society, Bombay, from January to December, 1893.

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THE
BIRMINGHAM MEDICAL REVIEW.

NOVEMBER, 1894.

ORIGINAL COMMUNICATIONS.

PRESIDENTIAL ADDRESS.

DELIVERED BEFORE THE BIRMINGHAM AND MIDLAND COUNTIES
BRANCH OF THE SOCIETY OF MEDICAL OFFICERS OF HEALTH,

BY

HERBERT MANLEY, M.A., M.B. CANTAB, D.P.H.
MEDICAL OFFICER OF HEALTH FOR THE BOROUGH OF WEST BROMWICH.

Si quid novisti rectius istis,

Candidus imperti : si non, his utere mecum.

Horace, Ep. I, vj. fin.

IT is no easy matter nowadays for the president of any institution or association, which has for its object the promotion and preservation of the public health, to find a technical subject for an address which has not been worn threadbare by other essayists ; and, therefore, to-day I do not presume to prefix any heading to the somewhat disjointed remarks which I am about to set before you. I can but hope that, however uninviting the *menu* may appear, there may here and there through the service be found one or two dishes not entirely unacceptable to you.

The Birmingham Branch of our Society, which enters to-day upon the twentieth year of its existence, has always been full of vitality ; and I believe that never has it been more vigorous and more influential than at the present time. I could wish for a better attendance at our meetings, and for more volunteers to read papers ; but I am aware that, unlike the populous centres among which the North-western and the Yorkshire Branches are

situated, our Midland rural districts and small towns are mainly worked by Medical Officers of Health who are engaged in general practice, and who find a difficulty in coming to meetings and preparing papers.

During the past year the Council of our Branch has been instrumental in promoting and, I trust I may say, carrying through a most important reform in the constitution of the Society's Council. To those who have from time to time been members of the Executive, many difficulties have been apparent and many anomalies have presented themselves. The disadvantages under which the provincial members of the Association have laboured — unequal representation, irregular attendance, and metropolitan indifference—are now in a fair way to be remedied. You are all aware of the efforts made by Dr. Reid and Dr. Bostock Hill to amend these drawbacks, and to them mainly the thanks of the provinces are due. The conference held in Manchester, which at the time of its inception was the object of much unfavourable criticism, has fully justified its existence, and the resolutions which were then drawn up have been, with one exception, accepted by the Council of the Society. I am amused to find that these resolutions, which have been denounced as revolutionary, are based almost exactly upon the lines laid down in 1887, when our Branch became affiliated to the Metropolitan Society, and which were unfortunately swept away when the new articles of association were drafted.

Before I leave this subject I should like to express my personal gratification at the great friendliness and courtesy which the metropolitan members generally have extended to me as the mouthpiece of the provinces at the recent conference, and to hope that the changes proposed may lead to a greater feeling of union in the Society. Let it not be forgotten that we are essentially a society of Medical Officers of Health, and, as such, more concerned with our own affairs than with those of other people.

There can be no doubt that the proper education and

training of the Sanitary Inspector is now receiving the serious attention of the Local Government Board. The conference of bodies who already possess licences for examination, and the differences which have arisen between them, are probably known to those of you who are interested in the subject, and we at present await the judgment of the Local Government Board on the question and the formation of a truly representative examining body. This certification of Inspectors is becoming a very important question, and one which concerns us as Medical Officers of Health. The relations which exist between the Medical Officer and his Inspector are of so intimate a nature that the comfort as well as the sanitary welfare of each Authority depends not a little on the efficiency of both officers. We, as Medical Officers of Health, are now required before undertaking the higher appointments, to qualify in Public Health, and the necessity for qualification which the London Act imposes upon Sanitary Inspectors must inevitably be shortly extended to the provinces. The certificate granted by the Sanitary Institute has been until lately the only qualification obtainable, and many public bodies, acting no doubt upon the advice of their sanitary officials, now require that candidates should possess it. Although it has been severely criticised I believe it to be a sound entrance examination to Public Health Work, and it is at least a guarantee against the appointment of Sanitary Inspectors whose only qualification for the office is either the smile of some powerful member of the committee or a claim for political or other services rendered. How far a higher grade examination for those who have already had practical experience is desirable is a further question, but one which must be considered without prejudice to the present examination.

So much for our own affairs during the past year; and now a word upon Imperial matters. Time on such an occasion as this does not permit me to do more than briefly mention recent legislation. The unravelling of the District Councils Bill is a process which I have avoided, congratulating myself that secure in a County Borough its provisions could

not touch me. The further development of powers with regard to the pollution of rivers is a subject of considerable moment to the counties from which the members of this branch are drawn, and we must all watch with deep interest the proceedings of Lancashire and the West Riding in their efforts to tackle this Augean Stable. I would prefer to pass over without comment the Infectious Hospitals Bill, because it is my hope that having Staffordshire, Worcestershire, Derbyshire, Warwickshire, Shropshire, and practically Leicestershire, represented in this branch, I shall have during my year of office some practical outcome of this most important measure from some of the County Medical Officers. As representing a small County Borough it seems to me that in any complete County Scheme it will be worthy of consideration to include small boroughs in hospital areas.

Various important questions still await legislative action, notably the universal notification of infectious diseases, the consolidation of the laws relating to Public Health, and the better regulation of uncertified and other deaths, and (according to some of our members) the prohibition of unregistered practitioners.

I have spoken at some length upon the Society and its aims and upon recent legislation, because I feel very strongly that owing to the causes which I have shadowed out we as a Society do not take sufficient interest in Sanitary legislation. I cannot too forcibly urge upon our Council to make our Society one for Medical Officers of Health and their protection, and to unite in fighting for a more substantial position instead of wrangling over shadows. We used to hear of Ireland and her three F's, and I think our own cry may be similarly summarised—Fair salaries, free action, and fixity of tenure.

United effort in some direction such as this will do more to knit the provinces to London and to efface any bitterness which may remain than the constant wrangle over what after all are interests purely foreign to the Association.

Much has been said and written lately about the qualifications

necessary for our office and the terms upon which it should be held, and, at the risk of repetition, it is my intention to-day to allude briefly to some of the aspects of the subject.

The tendency of the whole discussion respecting the training and qualification of Medical Officers of Health has been to suggest the creation of a new service of public officials who shall have received a special training in all the new 'ologies which make up modern hygiene—who shall, in fact, be a living embodiment of the monumental and encyclopædic work of Messrs. Stevenson and Murphy, but without any knowledge of the difficulties and labours of the medical men with whom they must daily come in contact, and little more than a bowing acquaintance with the diagnosis and treatment of many of the diseases which they are called upon to classify and to prevent. There would thus arise a Public Health Hierarchy into which already the hereditary principle has found its way, and in due time the Health Department will be as foreign to the main body of the profession to which it properly belongs as if it were a section of some kindred science. For myself, I cannot believe that such is to be the future of our office, and yet events point to it. It would ill become me, as still a young man, to rail against youthful appointments, but, to my astonishment, I find that at 37 I am already considered too old to undertake a fresh Medical Officership (Paddington). The permanent appointments of the service go to the men who have never even served as Medical Officers of Health, and Inspectors are sent down by the Local Government Board to teach us our duties when they have never had an opportunity of learning them by practical experience.

Much is said about the greater efficiency of the man who gives his whole time to Public Health; but let me assure you that to be paid £200 a year, and provided with a large staff of Inspectors, a comfortable armchair, and a cosy office, does not for a moment ensure that the recipient of these favours works a bit harder at his sanitary duties than his less-favoured colleague in general practice. Believe me there is no personal

thought in this ; it merely represents a question of principle. The old order of Medical Officers of Health is passing gradually away from amongst us ; but, however much we may be tempted to criticise their shortcomings and their failures, it is possible that when we come to estimate what *they* did with the imperfect laws and scanty glimmerings of Sanitary Science at their disposal, and to compare it with the present work under the vastly improved *régime*, amended statutes, and ever-increasing knowledge of the closing years of the century, the balance of the comparison will not remain with us.

But, we are told, where a Medical Officer is engaged in general practice he must of necessity be in constant conflict with his brother practitioners ; and to this fact the columns of our medical journals constantly bear witness. It has always been my custom to make a careful study of such cases, and of the causes which give rise to friction ; and I feel sure that there is no reason why a Medical Officer of Health in general practice, who acts honourably, should be at variance with his professional brethren. There is, unfortunately, within our ranks a class of practitioners who, being themselves devoid of ethics, are ever ready to complain of crookedness in their neighbours. Such cases must be encountered by all of us. There is also, at times, a tendency on the part of men engaged in general practice to resent what appears to them to be the mere *brusquerie* of officialism ; and of this our younger Medical Officers of Health are somewhat apt to be guilty in their zeal for what they believe to be the proper course in the interests of public health. (I do not exempt myself in the past from this condemnation.) It cannot be too strongly impressed upon the aspirants to whole-time sanitary appointments that the general practitioner is beset with trials and troubles of which the fortunate occupant of an official chair is ignorant, and from which he is exempt, and that the relationships between medical men are most delicate, and require to be touched with a very light hand. All things may indeed appear lawful to a Medical Officer of Health ; but persuasion is far superior to prosecution, and I

am quite sure that all things are not expedient. It is not necessary to instance my meaning to a Society in which the questions of visiting cases notified, correcting diagnoses, etc., have been so often discussed, and I feel sure that you will realise the value of my insistence upon these points.

However, let us, for the sake of argument, admit the advisability of making whole-time appointments, and it will at once be necessary to discuss the question of work and remuneration. Work first. No one will deny that in the great towns and combined districts the duties of a Medical Officer of Health will be ample to occupy his whole time. We number among our members so many representatives of the large towns that we are aware of this fact; but in the next scale of towns the problem becomes difficult. It is customary, therefore, to combine other offices with that of the Medical Officer of Health, and I will endeavour to enumerate them in their most common order of occurrence:—Physician to Isolation Hospital, Police Surgeon, Analyst, Surgeon to School Board, and perhaps one or two which have escaped my notice. It might even be convenient to include the duties of Public Vaccinator; and, in the event of a Medical Certifier or Coroner's Assessor being created, it remains an open question whether such an office more appropriately belongs to the Medical Officer of Health or to the Police Surgeon. I think, by a judicious combination of these offices, a post of sufficient value might be created which would not merely induce first-class men to undertake such an appointment, but would retain their services in the district, and remove the evil which necessarily attaches to a town where the permanent officials are always on the watch for similar posts elsewhere with better pay. I do not favour the combination of Medical Officer of Health and Analyst, because I have always felt that it is somewhat incompatible to combine an essentially indoor with an essentially outdoor appointment, for such I conceive that of a Medical Officer of Health to be.

The question of remuneration is even more difficult, and can never be satisfactory until regulated in a generous spirit by

authority. The modern tendency to permit the Local Board of Drinkbilge-cum-Slopperton to enjoy a species of Home Rule, unfettered by the dictates of Whitehall, is detrimental to permanent public servants, who hold office on an uncertain tenure. How a scale of remuneration is to be adjusted is a very nice point. The circumstances of urban and rural population are so different, the acreage to be covered, and the comparatively little work to be done in it; and, on the other hand, the crowded population of small manufacturing or mining towns, which require constant supervision, seems to shew clearly that each salary must be considered on its merits. We have heard a good deal of high salaries demanded by highly qualified candidates, but, as I have already indicated, I have yet to learn that mere academical qualifications, however ornamental and honourable, fit a man to be a good Medical Officer of Health. A mind which has the skill and the patience to grapple with the devices and shift methods of the law-breaking owners of properties, a courtesy which never fails amidst the abuse of committees or the slanders of ratepayers' associations, and that high moral and ethical tone which is one of the best and noblest traits of an honourable profession, constitute a series of qualifications as essential as the letters which we are apt to multiply after our names.

So far I have spoken of ourselves in relation to ourselves, and now I would like to pass on to our relations with other officers. First and most naturally I take the Inspector of Nuisances, or as he is more euphoniously but less accurately styled, the Sanitary Inspector. I warn you in all earnestness that the apotheosis of this officer may be expected shortly. He has been trained and certified and patted on the back until he believes that he has become the real Sanitary Authority, and that the Medical Officer of Health and the Committee are merely the useless appanages of himself and his assistants.

There are in my knowledge Medical Officers of Health and even whole time men who are content to allow their inspector to do their work as well as his own. Indeed you would hardly

believe some of the stories which I could relate to you. If you desire proof of this usurpation look at the pages of the *Sanitary Record*. I have no desire to be personal in a presidential address, but I cannot omit this opportunity of alluding to some of the remarks of that ingenuous inspector from beyond the Tweed who writes above the name of "Archibald Bell the Cat." This gentleman, like the historical character whose nickname he has adopted, considers himself the person appointed to sweep away the masons, plumbers, etc., who have become the unworthy favourites of the Sanitary Institute. He is the typically discontented Inspector who thinks that he does all the real work and his Medical Officer gets all the money. The claim which he has made from time to time that the only true knowledge of Sanitary Law is vested in the Inspectors, that the Medical Officer lays his burdens upon the Inspector and directs him to do illegal acts, and that most members of our Society, and notably of this branch, systematically neglect their statutory duties and put upon their inspectors, can be truthfully contradicted in this room by those who have personal knowledge to the contrary.

Time was, no doubt, when the Medical Officer of Health merely idled about his district and wrote a report once a year, when he never attended a committee, and was content to be paid to let ill alone, but except in a few places that time has now gone by. To the Sanitary Inspector and to the Medical Officer separate and distinct duties are allotted and they can be easily carried out without friction. Personally I do not consider the Inspector as a mere subordinate to the Medical Officer of Health; far from it. My constant aim has been to encourage original work on his part and to induce him to take matters up for himself. He reports to the Committee on all cases which more immediately concern him, but I require those reports to be submitted to me in order that I may inspect all doubtful nuisances and be prepared to advise the Committee in view of legal proceedings and further results. Naturally to the Medical Officer falls the management of epidemic disease, the Housing of the Working Classes Act, and some few special questions such as Isolation

Hospital work and the sanitation of workshops. But I do most emphatically protest against the invasion of one department by the other. I hear that in a northern county borough the office of Chief Inspector is in future to be held by the Medical Officer of Health. What can the Medical Officer gain by such a course? He has already all the powers which such an appointment will confer, and is merely making a burden for his own back and lowering the status of his office. This is an even more objectionable arrangement than that other in which the chief inspectorship is held by a member of our profession. I fail to see any justification for this undignified and unworthy competition. Let the Sanitary Inspector keep his place, for it is an honourable office and full of opportunities for good work, let him be a real living entity to his authority and not a mere bullet-maker and scout for his Medical Officer; and on the other hand, let the Medical Officer take the position which is his by right as the intelligent guiding spirit of the whole sanitary department—the responsible adviser of the Committee whose advice is valuable, not as that of an inspector with an elementary knowledge of drainage and an empirical smattering of police court procedure, but as the carefully-weighed opinion of one who has endeavoured to perfect himself by education, both general and special, and who does not speak without good authority and a full calculation of the results which his advice entails.

A word or two will suffice with regard to our other nearest colleague; I mean the Surveyor or Engineer. The interchange of work between the two departments, especially where sanitary improvements are being extensively enforced, renders it of vital importance that perfect harmony should prevail. We cannot always agree. The arrangement of sewage farms, the prevention of sewer gas emanation, methods of ventilation, the ownership of common drains, all occur to me as points over which I have broken a lance before now with my engineering friends; and more than that, there are still moments when I could wish that the line of demarcation between the Surveyor's department and my own was more clearly defined, and that not least when the

employment of horses and carts and the cleansing of middens is called in question—a hateful detail which drags behind the Sanitary Department and gives it an evil name for bad work and excessive outlay.

In fact, without going into further particulars, it has always seemed to me not to be the least qualification of a Medical Officer that he can live in harmony with his brother officials. Happy, indeed, is the Local Authority whose officers, instead of always endeavouring to shift the blame of any error from shoulder to shoulder, present a united front both to committees and to the public.

Pass we next to our employers. No part of our position seems to be surrounded with such pitfalls and difficulties as the relation of the Medical Officer to his Sanitary Authority. As the hoarded money of the old Latin proverb “*imperat aut servit*,” so the Medical Officer is either the master or the slave of his committee. Some of us who are fortunate in our rulers may think that the difficulties of others are exaggerated, but I regret to say that in too many cases no exaggeration is possible. Abler pens than mine have humorously sketched the genera and species of that fearsome wild fowl the Local Board, a corporate body which, though incapable of salvation and exempt from corporal punishment, hath yet a peculiar majesty of its own, to outrage which is perdition. There are yet to be found men strong in their ignorance, rich in the possession of rotten property, predominant in the ruling political faction, who regard their officers as men to be bullied and insulted, and who are ever ready to impute unworthy motives to the most disinterested advisers. Let us arm ourselves against such a class by acquiring at least some guarantee against unjust dismissal.

This place appears to me to be not unfit to allude to one of the most flagrant abuses of local government of recent years. The dismissal of Dr. Carroll, of Ilkeston, because in his zeal for the public good he had dared to attack the property of his employers, and the sanction given by the Local Government Board to the appointment of one of those employers as his

successor—a man who has no sanitary diploma and no pretence to sanitary knowledge—goes a long way to discredit the system upon which we are treated by Whitehall. I understand that the member for Ilkeston, whose advent as Parliamentary Secretary we welcomed, and whom we also honour as a representative on the General Medical Council, is powerless in this case, in spite of the openly proclaimed motives which have led to this infamous action on the part of his constituents. I am told that Dr. Carroll has no remedy, and I wish to take this opportunity of urging upon every one of you that a remedy can only be obtained by perseverance and individual action in endeavouring to get the law amended. Let me beg of you all to lose no opportunity of pressing for fixity of tenure and for some guarantee of intelligent control by the Local Government Board, who, as they are ever ready to assume the function of critics, should at least protect those of their servants whose actions are unjustly criticised.

No one has more need than the Medical Officer of Health to be accurate in his facts, dogmatic in his theories, and ready upon every occasion to give good grounds for his belief. The committee, and indeed the public, are apt to judge us by results, and I suppose we must not complain. But, at the same time, it is aggravating and somewhat difficult of explanation when well-protected and sanitary localities become the seat of epidemics while the poor and unclean, huddled together in hovels which scarce deserve the name of houses, seem to bear a charmed existence. It is this failure of facts to harmonise with theories—this constant indication of the imperfect character of the science we practise—which should render us more tolerant of our detractors. Perhaps I am inclined to be too lenient towards anti-vaccinators, anti-sewerists, and anti-sanitarians of all sorts and denominations; but I believe fully in the Nemesis which most surely overtakes everyone who breaks the sanitary code of Nature; and I am sure that, like many of the unpleasant and even venomous members of the animal kingdom, the faddists have their uses. What an unbearable set of people we

should be if we had no opposition ! Perhaps even a worse fate might overtake us, and, tempted by theory into the garden of the fairy Experiment, we might become engulfed in the vast chasm of imperfectly ascertained processes.

It is, if I recollect rightly, Dr. Oliver Wendell Holmes who, in his "Autocrat of the Breakfast Table," describes every man as of a triple nature—the man as others see him, as he thinks himself to be, and as he really is. Perhaps I have tried to paint the Medical Officer as I think he ought to be. I am sure that in all work it is good to have an ideal, however difficult it may be to depict one.

But if I cannot portray an ideal Medical Officer, I may permit myself a quotation upon Local Sanitary Administration as it should be. "Our Public Health Acts are but a mighty system of coercion, designed chiefly to purge the body politic of physical dirt and disorder and the innumerable curses they entail. Urban and Rural Sanitary Authorities are the masters of the forces of life and death in one great section, and mete them out to poor sinners in their voyage through this world as Æolus meted out the blasts he guarded, but with their caprice tempered by law. Each member of a Local Board is a trustee of public health, and as he and his brethren discharge their vital functions, they bring down upon the district the reward or the vengeance of that just and unerring Nature which always pays in kind."

"Wise ratepayers will elect wise Boards, and good Boards will appoint good officials." To us is thus committed a great and important trust. Let us see that we are worthy of it, even in our hour of trial and opposition.

One more word, more to the world at large than to our own limited audience. The sanitary future of our country has already been shewn to depend mainly upon the efficiency of the units who, in their aggregate, form the local bodies which govern us. From Local Boards and Town Councils to County Councils and Parish Councils the tendency is, day by day, more and more to place the sanitary destinies of the country in the

hands of those least fitted to control them. The lesson which these men have to learn, and which it is our glorious but scantily remunerated lot to teach, is admirably set forth in the words of the anonymous writer from whom I have already quoted.

"At this moment, judging by the unerring standard of the death rate, England stands at the head of civilisation far above the shabby pretenders who conceal dirt below the glitter of finery. For what is more barbarous than for a nation to sit with arms folded and see a large percentage of its people cut off prematurely by the most infamous of all diseases, those engendered by their own violation of the laws of nature in the item of personal cleanliness. Every art, every science, every grace of civilisation must give the place of honour to the art, the science and the grace of a cleanly life fulfilling its natural span unstinted by malaria and zymotics. England with all her faults is facile princeps in the sanitary race. So must she flourish!" As I cannot expect agreement from everybody with my views, and as a presidential address admits of no debate, I will bid you good bye in the words of Horace—

Farewell : if you can mend these precepts, do :
If not, what serves for me may serve for you.

Conington.

THE TREATMENT OF BRONCHOCELE,
WITH NOTES OF FIVE CASES OF THE PARENCHYMATOUS FORM
OPERATED UPON FOR URGENT PRESSURE SYMPTOMS.*

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DURING the last few years considerable interest has been evinced both in the functions and in the diseases of the thyroid gland. In a paper communicated to the *British Medical Journal* in 1892, Mr. Victor Horsley thus concisely states his conclusions as to its functions:—

“The thyroid gland is a structure essentially connected with the metabolism of the blood and tissues. In fulfilment of its functions it is hæmopoietic both directly and indirectly, and it forms—that is, secretes—from the blood a colloidal substance which is transmitted, *via* the lymphatics, from the acini of the gland to the circulation.”

Professor Greenfield, in the Bradshaw Lecture of 1893—devoted chiefly to a consideration of Graves' Disease as a primary disease of the thyroid—says:—

“Whatever other functions may be subserved by the thyroid in the animal economy, whether in blood formation, proteid metabolism, or as supplementing the action of other organs, we cannot now doubt that all its more important functions are due to a secretion, which can be separated, though not as yet in a pure state. . . . And if, as seems probable, the essential constituent of the secretion should prove to be of the nature of a ferment, the usefulness of the colloid material will also be negated.”

Numerous observations, chiefly on the nature of thyroid extracts and their effect in cases of myxœdema, have since

* A Paper read before the Birmingham and Midland Counties Branch of the British Medical Association, February 8th, 1894.

been made, all tending to support the view expressed by Dr. Greenfield.

The metabolic importance of the gland is clearly shewn by the dire results upon the general vital activity of the tissues following its atrophy or complete removal in young adults, unless in the latter case there happens to be some additional masses of thyroid tissue or accessory glands, which are not infrequently found in certain recognised regions; and, conversely, by the marked curative effect upon the symptoms so caused, by the administration of the gland or gland extract.

The cause of thyroid enlargement, apart from inflammation and malignant growth, is still shrouded in obscurity, and I am not able in any way to lift the shroud,—rather the reverse. The enlargement occurs under the most diverse conditions of locality, surroundings, water supply, among dwellers in large manufacturing centres as well as dwellers in rural seclusion. It is, however, more common in the poorer classes and in the female sex. All that can be said is—that it seems not unlikely that the cause will ultimately be found in some hitherto unrecognised constituent in certain articles of diet or drinking water.

Most commonly the enlargement is uniform, both lobes and isthmus being proportionately hypertrophied. The new tissue is apparently composed of vesicles lined by epithelium and containing a viscid fluid. Single or multiple cysts may form as a result of degeneration, or fibrous tissue may be developed, especially in enlargements of long standing; more frequently there is a marked dilatation or development of vessels causing distressing symptoms of pulsation.

The process of enlargement is, as a rule, a gradual one, and many months often elapse ere the patient applies for treatment, and then it is more often because of the increasing deformity than because of any definite symptoms, unless the bronchocele be a pulsating one.

The treatment practically depends on the rapidity of the enlargement. When this is gradual, there are seldom any

pressure symptoms (unless the gland extends beneath the sternum), and therapeutic treatment alone is called for. In the simple forms, the most useful drugs are iodine and iron. They may be given separately, or together in the form of iodide of iron, or the tincture of iodine may be given with tincture of perchloride of iron, or iodide of potassium may be given with the citrate of iron and ammonium. Locally, inunction of an iodine ointment is a useful adjunct. In the pulsatile form, or when pulsation is one of the symptoms complained of, belladonna (so strongly advocated by Dr. Wilks) will be found a most useful remedy. Curiously enough, the administration of thyroid extract seems to have a decidedly beneficial effect. In the few cases in which I have given it diminution in size has taken place more quickly than with the ordinary remedies. In the fibrous and cystic forms drugs are of little avail, unless in the latter variety there is also considerable gland hypertrophy.

When the enlargement, and occasionally when cysts or adenomatous growths, increase rapidly in size, urgent symptoms are frequently caused from pressure upon important structures. The trachea—which is compressed laterally by the deeper portion of the lateral lobes, except in the rare substernal form—and recurrent laryngeal nerves suffer most frequently; the large vessels of the neck, the sympathetic and other nerves, and the œsophagus least frequently. In these cases, when the pressure symptoms become troublesome or dangerous, operative treatment is necessary. It is I think also justifiable to undertake the enucleation of cysts or adenomatous growths, at the patient's request, for the cure of marked deformity, even though there may be no pressure symptoms.

Many methods of operative treatment have been employed. Of these, setons, injections of various chemical substances, ligature of the thyroid arteries, and simple division of the thyroid isthmus have been virtually abandoned in favour of safer or more efficient methods.

The almost constant occurrence of symptoms of myxœdema

after complete extirpation of the gland renders this operation unjustifiable, unless for malignant disease, which is fortunately a rare condition.

Removal of one lobe only has the disadvantage that the one not interfered with may hypertrophy. The deformity will remain, and possibly troublesome symptoms may arise from unilateral pressure.

The method employed by Sir Joseph Lister of scooping out the gland tissue through an incision in the capsule does not seem to have met with much favour.

Intraglandular enucleation is applicable only to cysts or new adenomatous growths, and for these conditions is a most suitable procedure.

Resection of the isthmus and adjoining parts of the lateral lobes; resection of the greater part of the gland, leaving only the parts in relation to the recurrent laryngeal nerves (Mickulicz); and removal of one lobe combined with resection of part of the remaining one, are the methods now most generally adopted in bilateral bronchocele, the variety I wish especially to refer to. The principle of these three procedures is much the same, the difference being in the amount of gland removed. This raises again the question of function—viz., the amount of gland that must be left for functional purposes. There are no data to shew what the precise amount should be, but if one may judge from experiments on carnivora quoted by Horsley (*loc. cit.*), which shew that at least one-third, or in some cases one-fourth of the gland must be left to prevent the onset of fatal cachexia, it would seem advisable to leave at least the larger amount—viz., one-third. Enough of the gland would therefore be left by any one of these methods.

Clinical experience tends to prove that after resection of even a small portion of a lobe, the enlargement greatly diminishes, probably by drainage directly from the vesicles or through the lymphatics, followed by a readjustment of the balance of secretion and absorption. This diminution, however, is not rapid enough to be relied upon to relieve the urgent dyspnoea, and it

is therefore necessary to remove part of the gland in the immediate vicinity of the trachea. I do not think it at all necessary to remove as much as Mickulicz does. The result we wish to achieve can be attained by the first-mentioned process—viz., resection of the isthmus or central portion with sufficient of the adjoining parts of the lateral lobes to relieve the urgent pressure symptoms. It is the method I purposed to follow in the present series of cases, though in no less than three of the five cases I am about to refer to I found it easier to remove the whole of the right lobe in addition to the resection of the central portion and adjoining part of the left lobe.

The first time I operated after this method was in 1887, on a boy of 15 with a large parenchymatous goitre of only three months' growth; the pressure symptoms were very marked. The trachea was well cleared without much trouble, and the boy made a rapid recovery. Short notes of the case are published in the *Lancet* for that year (December, 1887). The boy was also shewn at the Pathological Section of the Birmingham Branch of the British Medical Association on February 28th, 1890, when Mr. Berry read an important paper on goitre.

The second case was that of a girl, æt. 15, with marked stridor and most urgent dyspnœa. The enlargement had been noticed for six months. Resection of the central part, with a portion of each lateral lobe was performed. The trachea was almost closed by lateral pressure. Tracheotomy had to be performed at the time of operation, and it was some months before the tube could be left out, although the remainder of the gland gradually atrophied. Notes of this case are published in the *Birmingham Medical Review* of 1892, the patient having been shewn at the meeting of the Pathological Section on February 26th, 1892.

The third case was that of a young man, æt. 21, with a large bilateral goitre of four months' growth. The lower part of the right lobe extended beneath the sternum. Mainly on this account the right lobe was removed, with the central part and

a small portion of the left lobe. The operation was fairly easily performed, and the urgent dyspnoea was at once relieved. The wound healed by first intention, except along the track of the drainage tube. The operation was performed on February 2nd, and on February 22nd the note is that the remaining portion of the gland had returned to its normal size.

The fourth case was that of a man, æt. 21, a labourer, with a large bilateral goitre of five years' duration. Two months prior to his admission into Queen's Hospital the enlargement had been rapid. A large part extended beneath the sternum, and dyspnoea was extreme; so much so, that at the commencement of the operation the trachea had to be rapidly cleared and tracheotomy performed to prevent death from asphyxia. The dyspnoea was only partially relieved, the trachea not only being compressed laterally in the neck, but in the antero-posterior diameter beneath the sternum. The portion beneath the sternum, about the size of one's fist, was then shelled out. It was connected with the right lobe, which was removed in its entirety, it being easier to do this than to make a section. A portion of the left lobe was resected, the opening in the trachea was closed, and the wound sutured. On the second day after the operation the patient's temperature went up, his pulse became rapid, and he presented the symptoms produced by a large dose of thyroid extract. The next day a collection of colloid secretion was discovered and evacuated, and the symptoms subsided, and I think there was no doubt they were due to absorption of this secretion. The wound practically healed by first intention. The operation was performed on June 28th, 1893, and when the patient was discharged, at the end of July, the remaining part of the left lobe had practically become reduced to its normal dimensions.

The fifth case was that of a woman, æt. 20, who had a large bilateral bronchocele of fourteen years' duration. For some months before admission it had enlarged rather more rapidly, especially on the right side. At times she suffered greatly from dyspnoea. In this case also it was found easier to remove the

whole of the right lobe in addition to the resection of the central and part of the left lobe. The gland was furrowed by a plexus of large veins, and the hæmorrhage at times was troublesome. The weight of the portion removed was $16\frac{1}{2}$ oz. The wound healed by primary union, and the remainder of the left lobe gradually diminished in size. The operation was performed on July 24th, and she left the hospital on August 30th.

The after-treatment of these cases is important. It is always advisable to use one or more drainage-tubes for at least twenty-four hours to carry away the drainage of secretion from the cut surfaces of the gland; the hollows left must be well padded over, and uniform pressure must be applied; the neck must be kept at rest by the use of a millboard or other collar; and the movements of deglutition minimised for the first day or two by rectal feeding. The patient should be placed in a semi-recumbent posture, as recommended by Mr. Berry in the paper I have already referred to.

Looking at the series of cases collectively, the following points are of interest:—

1. The sex, three out of five being males.
 2. The fact that tracheotomy was necessary at the time of operation in two out of the five, though in one the tracheal opening was closed after removal of the growth.
 3. In two cases out of the five the growth extended beneath the sternum, causing some antero-posterior flattening of the trachea.
 4. The very much greater vascularity in the two female cases. In both the plexus of veins in the investing fascia was much more marked than in the other three cases, though this of course may only be a coincidence.
 5. The uniform satisfactory result, the primary union, and the subsequent decrease in size of the part left; and the freedom, so far, from any subsequent cachectic symptoms.
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AN ABSTRACT OF A
MIDDLEMORE POST-GRADUATE LECTURE ON
OPHTHALMIA NEONATORUM.

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The frequency of the disease and its sequelæ.—In lying-in institutions the disease is found to occur in from 1 to 20 per cent. of infants. In the blind asylums of the United Kingdom at least 30 per cent. are brought there by this disease. It has been roughly calculated that the persons totally blinded and those having eyesight more or less impaired amount in the United Kingdom to between 30,000 and 40,000. This is a state of things which may be almost entirely remedied by proper care and precaution.

Etiology of the disease.—Cold and dirt may produce catarrhal or irritative conjunctivitis in the eyes of a new-born child; but the etiological element in true ophthalmia neonatorum is direct infection. The vitiated secretions from the mother's passages are forced between the child's eyelids during the journey of the head through these passages; or infective materials are conveyed between the eyelids by means of soiled sponges or other things in the first washing of the child.

Whether the discharges which are capable of giving rise to ophthalmia neonatorum are all purely gonorrhœal in origin need not be discussed; any discharge containing micrococci may be the cause. The severity of the attack depends upon the stage of activity of the infective material and upon the condition of receptivity of the conjunctivæ of the child. For convenience, the forms of ophthalmia affecting the new-born child may be classed thus:—1, True ophthalmia neonatorum, which is of purely specific origin and marked by the presence of diplococci; 2, a purulent conjunctivitis due to infection by leucorrhœal

discharge, of non-gonorrhœal origin; 3, an irritative or catarrhal form due to cold or some external irritant, the first form being severe and obstinate and frequently most disastrous in its results, the two latter of less severity and brief duration and yielding readily to simple remedies.

Pinniger has made some very careful investigations regarding the relationships between the infective material and the ophthalmia produced by it. He found that the period of incubation is of shorter duration in proportion as the discharge producing infection is more active. The infective power of the secretions may be weakened in various ways. For example, dilution with water to the thousandth part makes any vaginal secretion inert. Drying of the most active secretion produces the same effects after thirty-six hours. If the same kind of secretion be preserved like vaccine, it remains infective for sixty hours. The weaker the infecting secretion, the longer the period of incubation and the milder the subsequent inflammation.

The course and character of Ophthalmia Neonatorum.—Two or three days after the birth of the child there is redness and swelling of the eyelids, and the edges of the lids are more or less glued together by a mucous secretion. A day or two later the swelling of the lids is much increased, and the conjunctival sac becomes filled with a yellowish-green fluid in which float yellowish-white mucopurulent flakes. If the eyelids be well everted and the conjunctiva of the lower lid well turned outwards, it will be seen to be greatly congested, and covered by a secretion of a distinctly purulent character. Again, a day or two later the conjunctival swelling becomes greater and intensely vascular, and an abundant, thick, purulent secretion escapes.

The palpebral portion of the conjunctiva suffers more than the ocular portion. So much is this marked that it is not an unusual thing to see the lower eyelid somewhat everted by the swollen conjunctiva being forced through the palpebral opening by the forcible contraction of the lids. Sometimes the upper eyelid is similarly everted.

In further stages a condition of the conjunctiva resembling that seen in the acute stages of granular ophthalmia occurs. There are prominences on the conjunctiva due to great vascularity and turgescence of the conjunctival papillæ.

Sometimes the purulent secretion from the inflamed conjunctiva, being surcharged with fibrinous elements, coagulates and forms a pseudo-membrane on the inner surface of the eyelid. This looks, at first sight, like diphtheritic ophthalmia; but true diphtheritic ophthalmia is never seen in the newly born; and the pseudo-form is further to be distinguished from the true form by the ease with which the membrane can be removed from the conjunctiva, and by the fact that the underlying conjunctiva, after the fibrinous layer is removed, is red, very vascular, and bleeds freely, its papillæ being very swollen, whilst in true diphtheritic ophthalmia the conjunctiva is filled with solid exudation, and the membrane is tough and very adherent, and the conjunctiva, when the membrane is removed, is pale, œdematous, and bleeds but little.

In many cases, fortunately, the inflammation and discharge gradually decrease and recovery takes place; but in many, also, the cornea becomes affected, and then more or less impairment of vision is pretty sure to follow.

The ways in which the cornea may be affected are various. Sometimes small losses of epithelium take place—so small as to be at first overlooked—the cornea appearing transparent notwithstanding the erosion. If this occur towards the end of the attack and if it be detected, not much harm may be done, and, with a healthy reaction, regeneration of the destroyed tissue may readily go on; but if this complication appear when the inflammation is at its height, the little erosions extend deeper and deeper into the corneal substance, and ulcers are formed which are covered with a yellowish slough. These ulcers may then extend, and perforation of the cornea may follow.

It is of the greatest importance to detect at the outset these small softenings of the corneal epithelium, and so slight may they be that to even a careful examination the cornea may look

quite transparent although they may have begun to exist. There is fortunately a very simple means of detecting any softening of the corneal epithelium even before it is visible to an ordinary observation. This consists in dropping into the eye a weak solution of Fluoresceine. This solution causes no pain, but it stains even the minutest derangement of the corneal epithelium a marked yellow, and so renders the change, however slight, distinctly visible.

Sometimes a sudden loss of transparency appears towards the centre of the cornea and an abscess rapidly forms in the corneal layers.

Sometimes infiltration takes place at the margin of the cornea, forming a more or less complete ring. This appearance indicates a marked interference with the nutrition of the cornea, and very frequently ends in a general necrosis of that membrane and loss of the eye. The cause of this severe form of corneal affection is probably inflammation of the subconjunctival tissue pressing on and strangulating the nutrient vessels of the cornea. In these cases there is usually marked chemosis, that is swelling and infiltration of the conjunctiva of the eyeball, due to the dense inflammatory infiltration of the conjunctiva. The conjunctiva rises like a wall round the corneal margin. This dense infiltration of the peri-corneal conjunctiva leads to obstruction of the circulation in the marginal loops of the cornea and so interferes with its nutrition; hence the more pronounced and the more tense the chemosis the more confidently is an affection of the cornea to be expected, and when the cornea is involved in such cases the point of attack is usually the site of the most severe chemosis.

The other forms of corneal lesion may be due to some slight destruction of corneal epithelium by the softening effect of the discharge or to mechanical injury from the swollen lid and invasion of the altered corneal surface by infective material.

The consequences of corneal complications.—These are always serious, generally *extremely serious*. Permanent opacities of the cornea, of more or less density, are sure to follow, even if

perforation of the cornea do not take place. These opacities are serious in proportion to their size and position. A not very dense opacity covering nearly the whole of the cornea renders vision so hazy that no occupation requiring accurate sight is possible; and a very small central opacity, if it be dense, may be even more disturbing, though in this latter case a skilfully effected artificial pupil may greatly improve vision. But in every case of corneal opacity the acuteness of vision is reduced.

If the corneal ulcer have perforated, it is very probable that the iris may become attached to and incarcerated in the cicatrix, and staphylomatous bulging of the cornea may result; whilst in the more severe necroses of the cornea, complete destruction of the eye may follow.

Prognosis.—The prognosis is not absolutely bad when there is no complication. Notwithstanding great conjunctival swelling and profuse discharge, if the cornea remain clear there is every probability of a successful issue. But so uncertain is the progress of this form of ophthalmia that complications may arise at any period of its course, and caution and reserve in expressing a positive opinion are always advisable. If obliged to give an opinion, we must take into account the period and intensity of the attack and the history of the mother. If there be a distinct gonorrhœal history, it will be well to give an unfavourable opinion until all danger is absolutely over. If the cornea be affected, the prognosis must, for reasons above given, always be more or less unfavourable.

Treatment.—First of all—since it is clear that ophthalmia neonatorum is a disease derived directly from the mother, being due to infection from the vaginal discharge of the mother—the soundest prophylactic treatment consists in cleansing and disinfecting the vagina of the mother before and during labour. For this purpose the vagina should be well washed out with a solution of perchloride of mercury in the proportion of 1 to 5000. This is a strength not likely to be poisonous, especially when used before labour is completed. But if any fear be felt of the poisonous effects of the perchloride of mercury, other anti-

septics may be employed. For example, the vagina should be thoroughly irrigated by a good stream of a 10 per cent. warm solution of biborate of soda, or a solution of Condyl's fluid, supplied from a reservoir hung five or six feet above the level of the patient. The vagina having been thus well cleansed by irrigation, a further disinfection by means of strong Condyl's fluid, or boric acid, or a weak solution (1 grain to the ounce) of chloride of zinc, or the same strength of the sulpho-carbolate of zinc, may be employed; and if the vagina be dry, an emollient ointment of boric acid in vaseline may be freely used. By these means the vaginal discharges are, for the time being, reduced to a minimum, and the chances of the child's eyes being affected enormously lessened.

Thus then, the first and most effective prophylaxis is to be secured *before the birth of the child*. Supposing such methods neglected, abortive measures must be used.

Immediately after birth in every case of a child born of a woman having a vaginal discharge the head, face, eyes, and hands should be well washed with a strong solution of Borax, and three or four drops of a two-grain to the ounce solution of nitrate of silver should be instilled between the eyelids and the eyelids rubbed over the globe. This simple treatment in the hands of a distinguished surgeon to a maternity hospital (*crèche* Leipsic) was regularly practised for six years, and out of seven hundred and fourteen births there was not one child affected by ophthalmia; whereas before this plan was adopted the proportion of children attacked was 10·8 per cent.

Once purulent ophthalmia is established in a child's eyes the treatment requires great care. In the early stages, when any redness and some slight swelling of eyelids exists and the discharge is serous with floculi of lymph, strong local applications are not justifiable. The best applications in this stage are frequent irrigations with a weak solution, 1 in 3000 or 4000, of perchloride of mercury and the brushing over of the palpebral conjunctiva with a two-grain solution of nitrate of silver, together with the free introduction between the eyelids of an ointment

of 10 per cent. iodol in vaseline. If, in spite of these means, inflammation should become more active and the discharge distinctly purulent, there are two or three especial remedies of distinct value. They are the nitrate of silver, the perchloride of mercury, and the chloride of zinc. Each of these remedies must be applied by means of a brush to the conjunctiva to be effectual. To do this a fairly stiff-haired brush must be used, and after thorough cleansing of the conjunctiva of the lids and fornix by means of irrigation with a weak antiseptic, solutions of these substances must be well brushed over the surface of the palpebral conjunctiva and the brush swept carefully and repeatedly into the deep folds of the fornix.

The strength of solutions most useful are—of nitrate of silver, ten grains to the ounce of water; of the perchloride of mercury, 1 in 1000; of the chloride of zinc, four grains to the ounce. After their use all superfluous quantity must be removed, in the case of nitrate of silver by a solution of common salt, in the others by free washing with warm water. Irrigation should be employed hourly with a solution of 10 per cent of boric acid in a solution of 1 in 5000 of perchloride of mercury or of weak aqua chlori. These fluids should be used slightly warm. Irrigation has now taken the place of syringing between the eyelids, as being a much more trustworthy method of cleansing.*

If the cornea shew signs of becoming affected, the case becomes more serious, and, instead of relaxing in the use of the remedies just mentioned, there must be additional care in their use. Atropine must be used in addition, drops of the following form being used:—Four grains of the sulphate of atropine and two of nitrate of silver to be dissolved in an ounce of water, and two drops instilled into the eye three times daily. The following powder should be dusted once daily into the

* The eyelids must be well separated during the irrigation. This is best done by pulling them apart by means of elevators. If these instruments are not at hand two large hairpins, the rounded ends bent to an angle so as to form a sort of hook, suffice. They do not injure the lids and take up but little room.

conjunctiva, after cleansing by irrigation as before mentioned :—
Boric acid, three parts ; quinine, one part.

If ulceration of cornea go on, the margins of the floors of the ulcer should be lightly touched with the electric cautery. If perforation threaten, paracentesis of the cornea should be made. Success, however, does not follow the employment of these means in ulceration of the cornea in ophthalmia neonatorum in such degree as in the treatment of the ordinary forms of corneal ulcer in more advanced life, probably owing to the delicacy of the infants' tissues and to the presence of such considerable quantity of infecting material.

An important fact to remember is that the corneal is secondary to the conjunctival affection, and that under the steady treatment of the conjunctiva, the corneal trouble advances most surely to recovery.

In many cases of ophthalmia neonatorum, after the acute symptoms have subsided, a gleety discharge from the conjunctiva remains. This must be checked for obvious reasons, and especially because it may cause acute or chronic inflammation of the lachrymal sac, a condition most difficult to treat in infants.

In the lingering stages of the termination of an attack of ophthalmia neonatorum, change of remedies is necessary. The most useful are chloride of zinc, sulpho-carbolate of zinc, acetate of zinc, sulphate of copper, lapis doinis (in proportions of a grain or two to the ounce), and ointment of the yellow oxide of mercury (1 or 2 per cent.), or iodol (5 per cent.).

ON SOME OF THE LESS COMMON DISEASES OF THE VULVA.

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SURGEON TO THE BIRMINGHAM AND MIDLAND HOSPITAL
FOR WOMEN.

(Continued from page 199)

II.—LIPOMA OF THE LABIUM.

IN nearly all of our text-books on Gynæcology the subject of Lipoma of the Vulva is dismissed in very few words.

The fact that the "mons" or "labia" may be the seat of fatty growths is recorded, and two or three of the following cases are mentioned (those of Stiegelé, Buntzel, Koch, Emmet and Goodell), all of which were remarkable from the size attained by the tumor, but this usually exhausts the subject.

So far as I can discover, in only one of these cases (mentioned in the American System of Gynæcology, vol. i., p. 520) was there any real diagnostic difficulty. In this case (that of Goodell) the tumour appeared to fluctuate, and was mistaken for a cyst.

Perhaps the best description of lipoma of the vulva, as of so many gynæcological ailments, is to be found in Winckel's book on Diseases of Women (Parvin's translation, 1890).

He writes: "Lipomata are found not only on the mons veneris and labia majora, but also on the nymphæ. A lipoma, situated on the free border of the right nymphæ, is represented in my Atlas, pl. iv., p. 100.

"These tumors are, as a rule, lobulated, tolerably soft, slightly sensitive, often grow rapidly, and are, on account of their form, consistence, sensitiveness, and the burning sensation produced by them, most frequently confounded with sarcoma of the vulva."

I fancy, however, that most of the descriptions given, and

even this (good as it is) must be considered to deal either with general outlines or the particulars of some advanced case when the tumour has grown to considerable size. Smaller cases have probably been considered too trivial for any detailed report, and there is still room for someone to describe how a case of simple lipoma of the labium is apt to really present itself in practice.

I therefore append a short account of two cases which have come under my own care.

Case 1. N. N., aged 28, single, was brought to me by her medical attendant as a case for operation. The diagnosis of the case was undecided, the difficulty lying between fatty tumour of the labium on the one hand and posterior labial hernia on the other. The patient gave the following history: On May 26th, 1888 (her birthday), pain came suddenly on the left labium, with very slight swelling and some "burning."

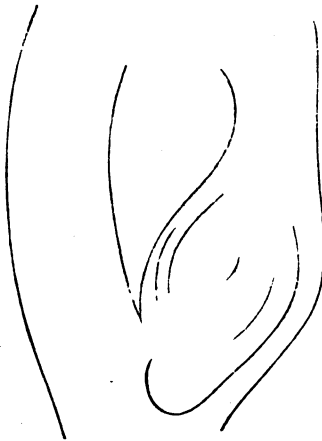


Fig. 1.

Ever since this date there has been a decided tumour at the posterior end of the left labium. There was no history of any strain or other accident previous to the appearance of the swelling. On examination a distinct rounded fulness at the posterior end of the left labium is immediately visible. This is soft to touch—apparently tender, with what appears to be a

deep pedicle or attachment. The swelling is quite irreducible (Fig. 1).

The patient states that after the examination she feels sick and has abdominal pain. The substance gives her considerable discomfort on going up and down stairs and in carrying anything. Latterly it has inconvenienced her on sitting. The patient is thin, but her general health is good. Menstruation is regular.

The tumour, if hernial, was certainly not intestinal, and the first impression given on examination of the case was undoubtedly that of a lipoma. The position, pedicle, and history, however, were so curiously suggestive of some form of "posterior labial" hernia that an absolute differential diagnosis was postponed until the time of operation.

On February 29th, 1889, the arrangements being the same as for abdominal section, an incision, about $1\frac{1}{2}$ inches long, was made over the swelling, disclosing a simple lipoma of the labium, which was dissected out. The edges of the incision were united by a continuous silk suture, and a small drainage tube left in the posterior angle of the wound.

On the 12th the suture was removed. The wound had healed by first intention.

Case 2. L. S., aged, 23, single, a worker in Messrs. Nettlefold's screw factory at Grove Lane, Smethwick, came to the out-patient department of the Women's Hospital on Sep. 23, 1889. She was complaining of a swelling on the left side of the vulva. This had been growing for eighteen months and its size was steadily increasing. It was not painful, but occasioned considerable discomfort, especially when sitting down or walking.

Menstruation was somewhat irregular, the interval being frequently prolonged to four or five weeks. Its duration and quantity were normal. Dysmenorrhœa was complained of for the first two days of the period. On examination the left labium was found to be involved in a somewhat diffuse swelling which extended slightly into the perinæum. The skin and hairs covering it were perfectly healthy, and the tumour itself, by its

softness, freedom from tenderness, and lobulated character, presented all the features of a fatty growth and was diagnosed as such. When the patient was lying on her left side a superficial observer might easily have mistaken the swelling for a natural fold of fatty tissue extending from the groin, but in the lithotomy position the shape and extent of the tumour could be exactly estimated (Fig. 2).



Fig. 2.

On January 4th, 1890, the patient being anaesthetized and placed in the lithotomy position, the labium was shaved and the lipoma removed by a straight incision extending from the upper part of the labium to the perineum. The tumour was found to possess several curious finger-like processes, and after removal presented an appearance similar to that depicted in the accompanying diagram (Fig. 3).



Fig. 3.

The edges of the incision were united by a continuous silk suture, a small drainage tube being left in the lower angle of the wound. On the 7th the suture was removed. The wound had healed by first intention.

REPORTS OF CASES.

UTERINE FIBROID.

REMOVAL OF POLYPUS; TEMPORARY IMPROVEMENT; DEATH BY
HÆMORRHAGE FOUR AND A HALF MONTHS LATER.

BY THOMAS WILSON, M.D., B.S. LOND., F.R.C.S. ENG.
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The following case appears worthy of record as an illustration of the occasional termination of fibroids of the uterus in death by hæmorrhage. The comparatively early age at which symptoms began, and the history of their sudden onset after a fatiguing day, on which point both the patient and her mother were very positive, made it difficult at first to arrive at the diagnosis of fibroids; but the case was placed beyond doubt by the evolution of a fibroid polypus between the first examination and the second, three months later. The polypus had developed presumably from a sub-mucous fibroid under the influence of ergot and of its own developmental growth, and was in process of natural cure by extrusion, if the patient had survived the effects of the necrotic changes which had already commenced on the vaginal surface of the growth. The perfect recovery at the time of operation and the subsequent decided improvement in the condition of the patient, lasting for three months, made the fatal issue of the case the more disappointing because it seemed that oöphorectomy, followed if need be by curetting, would almost certainly restore the woman to health. This chance was lost, however, by procrastination on the part of the patient and her friends.

A single woman, aged 32, was first seen by me on March 20th, 1893, complaining of severe pain and menorrhagia. She was a rather tall, thin, and decidedly anæmic woman, and

dated the commencement of her illness from a long walk five years previously, on the day following which a period came on with severe pain, and the patient has never been well since. The catamenia began at 16, and occurred every four to six weeks, lasting three days, and being unaccompanied by pain until the age of 27. Since then, the periods have recurred every month; have lasted usually a week, and sometimes ten or even fourteen days; there has been much loss, with, at times, clots; and severe pain in the lower abdomen and in the lower lumbar and upper sacral regions has come on at the same time as the flow and lasted during its continuance, and sometimes has been experienced for a few days in the intervals. There has always been a little leucorrhœa; no difficulty or pain in micturition or defæcation.

On local examination, the hymen was found to be intact, the vagina small; the os uteri was somewhat patulous, the uterus generally enlarged to about the size of a fist; the appendages could not be felt. Bimanual examination was difficult, a good deal of general tenderness being complained of in the lower abdomen. There were no abnormal physical signs in the chest or upper part of the abdomen. Full doses of ergot were ordered thrice daily, hot vaginal douches, and at the periods a mixture containing bromide of ammonium and aromatic spirits of ammonia.

This treatment was continued for three months without any improvement, and exploration under chloroform was then proposed and agreed to. Accordingly, on June 28th, 1893, chloroform being administered by Dr. Malet, the following condition was made out:—A large firm rounded body was found projecting into the upper part of the vagina; round this the thinned os uteri extended some distance above its lower end; the rounded body extended upwards into the cavity of the uterus, and was attached to the fundus by a broad base an inch and a half in diameter. The vaginal surface of the tumour was somewhat irregular, and greyish patches were scattered over it. The mass was seized with volsella and drawn down, and the

base cut through with scissors as high as possible, the piece removed being as large as a goose egg. There was very little bleeding. The inside of the uterus was swabbed with equal parts of glycerine and carbolic acid, the vagina well douched with Condyl's fluid, and a plug of sal alembroth wool left *in situ*. The patient recovered without a bad symptom, the temperature only reaching 100° once, and that on the day of operation.

Microscopical examination of the tumour removed shewed that it was composed of connective and plain muscular tissues, the latter forming a large proportion of its structure.

On August 19th it was reported that the last two periods had occurred at intervals of a month, and that the loss and pain had been much less; there was still a little discharge, varying in appearance; the general condition had improved, but not markedly. The uterus was found to be considerably larger, the enlargement being more towards the left side of the fundus and not regular as previously.

On October 7th the patient again reported herself, and said she had been away for a change and was much better until three weeks ago, when, after five and a half weeks' interval, she one morning began to bleed, and this continued freely for three or four hours, when she was found by Dr. F. T. Underhill pale, cold, and collapsed. The loss continued moderately for four or five days after this, since when she has improved slowly, but even now looks very pale and ill. The uterus was now found to have further decidedly increased in size upwards and to the left to about the size of two fists. The os just admitted the tip of the index finger. Behind the cervix was a small swelling which felt like a Fallopian tube. At this time Dr. Underhill informed me that he was afraid another loss such as the above would be fatal, and we both concurred in urging the patient and her friends to allow oöphorectomy to be done without delay. Unfortunately, they insisted upon waiting till after the next period; and the next intimation I received was that Miss W. had passed away on November 12th after a very short illness, concerning which Dr. Underhill has been kind

enough to give me the following particulars:—He was sent for early on the morning of the 12th, and found that bleeding had been going on for three days, and that the patient was hopelessly collapsed, so that, in spite of vaginal plugging, hypodermics of ergotine, and everything that could be done, she died the same day.

THREE CASES OF APPENDICITIS.

UNDER THE CARE OF ALBERT LUCAS, F.R.C.S.
SENIOR ASSISTANT SURGEON, GENERAL HOSPITAL, BIRMINGHAM.

Case 1. Relapsing Appendicitis; excision of appendix; recovery.—Florence F., aged 13, an out-patient of Dr. Short's, was admitted into the General Hospital on September 8th, 1894, with a history of four attacks of appendicitis during the last two years, the last being nine days before admission. After taking solid food, she had pain in the right iliac region. For thirteen weeks she had limped with the right leg.

Condition on admission.—Healthy-looking girl. There is tenderness on pressure over the right iliac region, and some rigidity of the abdominal muscles. There is some fulness to be felt corresponding to the outer side of the cæcum.

She was kept under observation for several days, and whilst on milk diet she remained quite well; but when given meat diet, developed pain in the right inguinal region, was sick, and her temperature—which had been normal—rose to 103·8.

On September 21st, with the assistance of Mr. Barling, I opened the abdomen, making a vertical incision rather more external than usual. On the outer side of the cæcum was a dense mass of adhesions. After these were broken down by the finger, a small quantity of turbid serum escaped from a cavity lined with granulation tissue. The vermiform appendix

was found here densely adherent to the cæcum. It was separated as high up as possible, ligatured with stout catgut, and cut off. A rubber drainage-tube was placed in the wound. The appendix was much thickened, and contained two small faecal concretions. After this she made an uneventful recovery, and is now up and about and on meat diet.

Case 2. *Localised Suppurative Peritonitis; abdominal section; recovery.*—Annie H., age 16, was admitted into the General Hospital on September 19th, 1894, under the care of Dr. Simon. She was quite well until September 13th, when she complained of pain in the abdomen, and was sick several times. She says she had a similar attack last Christmas, but it only lasted 24 hours.

Condition on admission.—The abdomen is distended, moves slightly with respiration; there is marked tenderness and rigidity over the right lumbar and iliac regions. Over the same area there is also a slight sense of fluctuation. Temperature 101°.

On September 21st I opened the abdomen over the most prominent part of the swelling. An abscess containing about six ounces of pus, and shut off from the general peritoneal cavity, was opened. At the bottom of the cavity a small faecal concretion was found and removed. A large rubber drainage-tube was then inserted and the wound closed. After this she made an uninterrupted recovery, the wound healed in about three weeks, and she is now quite well.

Case 3. *Localised Suppurative Peritonitis; abdominal section; death from exhaustion.*—A man aged 56 was admitted on September 29th, 1894, under the care of Mr. Haslam, with the following history:—That he had been ailing for three weeks, complaining of indigestion; had been in bed eight days before admission with pain in the right side of the abdomen; vomited once; bowels opened by injections only; thinks he ricked himself in the abdomen about a year ago; had influenza last Christmas.

Condition on admission.—Much emaciated, pulse very feeble, tongue dry, and covered with a brown fur; abdomen much

distended. In the right lumbar and iliac regions there is a large fluctuating swelling.

In the absence of Mr. Haslam I opened the abdomen at once, and let out about thirty ounces of very foul-smelling pus. Two large rubber drainage-tubes were inserted. In spite of stimulants and nutrient enemata, he died from exhaustion about thirty hours later.

Post mortem.—A large abscess cavity was found on the right side of the abdomen behind the ascending colon. A densely-hard stone, of the size of a large hazel nut, was found in the cavity. On further examination, the ulcerated end of the appendix was discovered projecting into the abscess cavity. There was no general peritonitis.

Remarks.—These three cases—all of which came under my notice in three weeks—illustrate well the different kinds of appendicitis. The first case called for operative procedures at once, inasmuch as she had had four attacks during two years; and whilst kept in bed was quite well on milk diet, but when given solid food her symptoms returned. I think the appendix ought to be removed after more than two or three relapses. Many cases after one or two attacks do undoubtedly recover; but it is never certain that there is not still a concretion there, which may at any time place the patient's life in danger. The last case was unfortunate in its result, as he was not sent to us until almost moribund. The stercolith removed was very dense and hard, and appeared more like a renal than an appendicular stone. It seems almost impossible that a stone of this size and density could have remained so long in the appendix without giving rise to more symptoms.

POST-EPILEPTIC AUTOMATISM,

WITH REPORTS OF TWO CASES.

BY A. DOUGLAS HEATH, M.D. LOND.

Attacks of major and minor epilepsy, the latter quite as frequently as the former, are occasionally liable to be followed by a peculiar condition known as "Epileptic Automatism," in which more or less complex actions are performed by patients before they regain consciousness, and for which they are entirely irresponsible. These actions take place during the period of continued unconsciousness which follows the convulsive stage of a typical epileptic fit; and just as the other stages of an epileptic fit are variable in degree, so is this state of continued unconsciousness both in duration and character. Generally when the patient recovers consciousness, which he may do in a few seconds or after several hours, he has no remembrance whatever of what has happened during the attack. In a few rarer cases, however, that have been recorded, there seems to have been some faint recollection on the part of the patient of some actions performed, but as to the reality of which he feels doubtful. These actions have been described as seeming to patients as if they had taken place during a dream. The automatic actions witnessed during the post-epileptic state may be very simple or exceedingly complex. One class of patient may do little else than talk incoherently; another will always set to work to alter the position of articles around him; another may start out for a rapid walk; whilst another will purloin anything near him. Several other classes of actions have been frequently described, but the above will serve as common types of the actions performed. In the first case I am about to describe there was a greater variety of unconscious actions than is very commonly seen; and in the second, actual somnambu-

lism seemed to take the place of other automatic actions after nocturnal attacks of *petit mal*.

Case 1. A boy, 15 years of age, was brought to me in August, 1893, having been found in the street wandering about and acting strangely. According to the account of an eyewitness who had watched him for nearly half an hour, he would rush wildly along muttering to himself all the time, and then, suddenly coming to a standstill, he would shout something that nobody could understand, and seemed to be looking for some article he had lost. He also once attempted to take off his coat, and became violent when restrained. When I saw him he was incessantly walking round the room, talking rapidly and incoherently. Occasionally he would call out some name in a loud voice, but generally his conversation could not be understood. He would seemingly examine carefully objects in the room; and once he picked up a cloth and set to work to polish a brass tap that was near. Shortly afterwards seeing a bolster lying close by, he suddenly put it under his arm and, calling out "Come along, Bill," made for the door. His parents soon after arrived, and gave the following account. The boy was one of a family of four, all the other children being healthy. His mother's sister had suffered from fits, but the other members of the family were free from any nervous troubles. The patient had been subject to fits from an early age, and, from the description of the attacks given by the boy's friends, there could be no doubt that they were epileptic. The tongue had frequently been bitten, and urine passed during the fits. Unconscious actions after these attacks were very common, and the boy had caused great trouble to his parents by his thieving propensities during these "unconscious spells." Articles taken by the patient were very rarely useful to him personally, as is so commonly the case with these so-called epileptic "kleptomaniacs;" and his friends noticed that after a fit he took up anything that was near him. Indeed on one occasion, his mother informed me, he walked away with the fireirons of a neighbour.

Case 2. An unmarried woman, 28 years of age, recently

came under my care for a burnt arm. It appeared that the night before she had gone to bed, leaving a lamp burning on a table in a far corner of the room, some considerable distance from the bed. About an hour afterwards, her friends, luckily attracted by the noise of her movements, came into her room and found her standing by the lamp with her night attire on fire. The patient—according to the story told by her friends—was in “a dazed sort of state,” and did not come to herself for three or four hours, when she complained of pain in her arm. On fully recovering consciousness she was surprised to find her arm and clothing burnt, and said the last thing she remembered was getting into bed. At first sight this might seem to be an ordinary case of somnambulism, but when the patient’s history is enquired into quite a different view would seem to be suggested by the facts. From the accounts given by the patient’s friends and herself I gathered that although she had previously been subject to bad attacks of giddiness, she had no real fits until she was nineteen years of age. At this time, after a severe illness which lasted three months, she was occasionally observed to suddenly look “strange” and “unlike herself,” to lose consciousness for a few seconds, and sometimes to have slight convulsive attacks. The actual convulsion during these fits has, however, always been very slight—rarely more than a few twitching movements of the hands and feet being seen—and in the majority of the attacks it has been altogether absent. The patient has frequently a fairly definite aura, feeling a burning pain over the temples and in the eyes before she loses consciousness. Her friends have noticed that she generally turns very pale at the beginning of an attack. During the last two or three years these fits have apparently been most prevalent at night, and on a few occasions urine has been found to have been voided during sleep. The patient has three or four times been known to get up from her bed, walk down stairs and attempt to open the street door, and then to return to bed without being aware of the fact. On another occasion she surprised her friends by saying that she must have done some

sewing whilst entirely unconscious (in an attack during the day) as she found her needlework in a more finished state than she remembered having left it, and everyone about her strongly denied having touched it. With such a history it seems only reasonable to conclude that this patient suffers from attacks of *petit mal*, which are now generally nocturnal, and that the somnambulism sometimes witnessed is really a phenomenon of the so-called post-epileptic state. The probable explanation of the incident mentioned at the beginning of the case would therefore be, that the woman had an epileptic seizure soon after going to bed, and that, whilst still unconscious, she walked across the room to the lamp and by some means set her clothing on fire—the unconsciousness remaining so profound that the powerful stimulus of the pain caused by the burn was entirely unfelt for some hours. There appears to be no evidence whatever for thinking that the patient performed these actions and feigned insensibility with a view to exciting attention or pity, as she has never been noticed to be emotional, hysterical, or fond of notoriety; but, on the contrary, more inclined to be of a phlegmatic and unobtrusive disposition. Finally, although the recognised onset of the epileptic fits seems rather late in life, the sensations of giddiness previously felt may possibly have been slight attacks of *petit mal*, and the liability of the patient to the disease may have been considerably augmented by the severe illness before mentioned.

PERISCOPE.

ENTERIC FEVER.

BY JAMES W. RUSSELL, M.A., M.D., M.R.C.P.

The latest volume of the Johns Hopkins Hospital Reports is taken up by a Report on Typhoid Fever, based essentially upon statistics taken from the 229 cases which have been treated in that hospital up to May 15th, 1893, but containing also much critical and historical matter. The report is divided into eight sections, a summary of the principal points of some of which is appended.

1. *General Analysis and Summary of the Cases.*—William Osler, M.D.—229 cases were treated, comprising 187 males and 42 females; 109, or nearly 50 per cent. of the patients, were between 20 and 30 years of age, and 17 only had passed their fortieth year. More than half the cases were admitted during the months of August, September, and October. 22 patients died, giving a mortality of 9·6 per cent., which, it is claimed, is an average rate of mortality, “perhaps a little lower than is common in general hospitals;” a statement which assuredly may be accepted in this country as not erring on the side of exaggeration. The average duration of stay in hospital was 28·1 days.

2. *Treatment of Typhoid Fever.*—William Osler, M.D.—The treatment adopted was based upon the usual good nursing and restricted diet, together with frequent cold bathing or sponging for the antipyretic and stimulating effect. Milk was the staple article of diet, supplemented, when possible, by egg-albumen, meat broths, and liberal allowances of sherry and brandy. Dr. Osler has apparently no faith in the antiseptic treatment of typhoid fever, for he asserts that no known drug shortens by a day the course of the fever.

The *cold baths* were given according to the following system. The patient receives a cold bath, at a temperature varying between 60° and 70° , every third hour so long as the rectal thermometer registers 102.5° or over. The bath is wheeled to the side of the bed and the patient lifted into it, his back being supported by a padded sloping platform or a properly adapted water cushion. The water entirely covers his chest, and a cloth wrung out of iced water is placed upon his head, whilst the head and face are also sponged with the same water. Meanwhile, the trunk and limbs are systematically rubbed by an attendant. At the end of twenty minutes, unless special reasons exist for curtailing the bath, the patient is lifted out, and either dried at once, or covered with a sheet and blanket for ten minutes previously and then dried; and a hot drink, usually of whisky and water, is administered. The bath is repeated at the end of three hours if the rectal temperature has again risen to 102.5° , the frequency therefore depending upon the severity of the case. Four baths in the 24 hours proved an average number, although eight were not unfrequently found to be necessary. The maximum number given in any individual case was 147. In all cases the patients were carefully watched, and severe collapse taken as an indication for the cessation of the bath. The baths were not used in 22 of the 196 cases admitted since the introduction of the treatment; most of these were mild cases, but five patients were considered to be too ill for their administration. Brand, however, who first brought the treatment prominently into notice, urges that the baths should in no case be omitted.

Speaking of the results of the treatment, Dr. Osler draws attention at the outset to the necessity of adapting the temperature and duration of the bath according to its effect on the patient. Children in particular are very susceptible to the antipyretic effect, and their temperature is rapidly reduced by a bath at 70° to the normal level or below it. Such an effect in adults is not usually seen until a later period of the disease, as in the third week. The cold bath acts in the majority of cases

as a tonic to the circulatory system. Within five or ten minutes the pulse becomes smaller, and its tension is increased. In the later stages, however, with a feeble heart and pulse above 120, a tonic action is not so often seen, and reaction is slow. On the nervous system still more marked effects are seen. The headache is relieved; delirium, stupor, and coma are rare; the patient sleeps well and naturally, and tremor is a rare occurrence. Moreover, it is said, the dry brown tongue is less often present, and gastric irritation is not so frequent. With regard however to the occurrence of hæmorrhage, perforation, and relapse, the superiority is strongly on the side of the 33 cases treated symptomatically before the cold bath system had been introduced, though this may easily be accounted for as the result of accident only. As far as the patients are concerned, the treatment is admittedly in the highest degree disagreeable, so much so that Dr. Osler distinctly states that he would not suffer it to be continued in his wards for a day did he not feel sure that under its systematic employment the death rate was materially lowered.

3. *Study of the Fatal Cases.*—By Wm. Osler, M.D.—Of the 22 fatal cases, 6 died from exhaustion due to the progressive toxæmia of the disease itself, and 2 from the severity of the gastro-intestinal symptoms; 4 died from intercurrent affections, 3 from hæmorrhage, and 8 from perforation.

4. *Notes on Special Features, Symptoms and Complications.*—Amongst many points analysed we note the following:—

The Rash.—Rose spots were noted in 199 cases, 86·9 per cent. In two instances there were small petechial spots, one of these cases proving fatal. A diffuse erythema occurred in seven cases.

Pulse.—There were 97 cases with a pulse-rate of 120 and over. These included all the fatal cases with one exception.

Diarrhœa occurred in only 76 cases—33·2 per cent. In seven of the fatal cases the diarrhœa was slight, in ten it was profuse, and in five there was none.

Relapses occurred in eighteen cases, or 7·8 per cent.*

Post-typhoid elevations of temperature of irregular character

and unknown cause were noted in eighteen cases, excluding children and very nervous subjects (in whom the afternoon temperature may be persistently above 99°), and cases of fever connected in convalescence with profound anæmia. These irregular elevations are of great interest and importance, from the difficulty of distinguishing them at first from true relapses.

5. *On the Neurosis following Enteric Fever known as "the Typhoid Spine."*—Three cases are described. In two of these the symptoms first made their appearance a short time after convalescence had been established, and in both they were immediately preceded by a slight trauma—in one case a fall while playing tennis; in the other, a slight fall on the left hip whilst skating. This was rapidly followed by increasing weakness of the limbs and general debility, and by severe pain in the back, which ultimately completely prostrated the patients. Both patients were highly neurotic; in both the pain occurred only on movement; and in neither were there any signs whatever of organic mischief. The patients improved slowly under tonic and moral treatment, coupled in one case with massage and electricity, and the application of Paquelin's cautery. In the third case, after a severe attack of typhoid fever with delirium, severe nervous symptoms, and tardy convalescence, the patient developed disturbed sensations in the feet and legs. Pain and tenderness were entirely absent, nor was there any definite retardation in sensation in any part of the body. The patient, however, insisted that he was the subject of various unnatural sensations in the lower limbs, which were a source of much discomfort to him. The reflexes were increased, and a slight ankle clonus was obtained. The symptoms diminished somewhat within five or six months, and then recurred during a period characterised by pronounced neurotic manifestations.

Stress is laid upon the usually neurotic character of this sequela of typhoid fever; but the occasional dependence of the various painful symptoms on organic mischief, such as spondylitis or peri-spondylitis, is not denied.

6. *On the Examination of the Blood in Typhoid Fever.*—W. S. Thayer, M.D.—*Red Corpuscles.*—At the beginning of the fever the number of red corpuscles is usually 'normal. During the first weeks a slight fall occurs, followed by a rapid decrease during defervescence, which usually reaches its limit about the first week of convalescence. Recovery from this anæmia is often slow; and the anæmia itself may be so severe as to constitute a dangerous complication.

Hæmoglobin is diminished to a rather greater extent than is the case with the red corpuscles.

Leucocytes.—Starting from the normal number, the leucocytes steadily diminish, reaching their lowest point about the end of defervescence. There is, moreover, a progressive diminution in the percentage of multi-nuclear elements, with a relative increase in the large mono-nuclear corpuscles.

Cold Bath Treatment of Enteric Fever.—Dr. Jas. C. Wilson (*Medical News*, Nov. 25th, 1893) publishes a fifth series of cases of enteric fever treated by systematic cold bathing in the German Hospital, Philadelphia. This method of treatment was first introduced into the hospital in February, 1890; from which time until June 1st, 1892, 226 cases were treated, with 12 deaths, giving a mortality of 5·3 per cent. From June 1st, 1892, to June 1st, 1893, 74 additional cases were treated, with 8 deaths, or a mortality of 10·8 per cent. The total mortality, therefore, in the 300 cases treated by this method in nearly three and a half years, amounts to 6·6 per cent. The total number of cases in which relapses occurred was 29.

The 74 patients included in this new series of cases were chiefly adolescents and young adults, 58 being less than 30 years of age. Children were not admitted, and no case at all occurred under 15 years of age. Twenty of the patients were admitted on or before the fifth day of the disease, of whom one died; 42 were admitted between the fifth and tenth days, with 4 deaths; and 12 after the tenth day, with 3 deaths.

The age of the fatal cases varied between 18 and 36 years. Meningitis and pneumonia were responsible for two deaths; hæmorrhages occurred in another three cases; and two patients died during a relapse.

Dr. Wilson claims for the cold-bath treatment of typhoid fever that the statistics of an extremely large number of cases coming under its operation shew a mortality percentage that is, as a rule, nearly constant; and that this statement applies to large and small collections alike. This percentage, whenever the treatment has been rigorously carried out, seldom rises much above 6 or 7 per cent.; whereas the mortality in general hospitals adopting other methods of treatment varies between 15 and 25 per cent. Brand claims, in addition, that death rarely, if ever, occurs in those cases in which the treatment is begun before the fifth day of the disease.

A Report on three years' use of Naphthol β in the antiseptic treatment of Typhoid Fever.—E. H. Embley, M.B. (*Australian Medical Journal*, May 20th, 1894)—The first noticeable effects of Naphthol β in the treatment of typhoid fever are, it is claimed, a more or less free and continuous diaphoresis, occurring very soon, and a gradual loss of the peculiar apathetic countenance; sleep becomes more natural and prolonged; and on the third or fourth day the character of the pulse changes, becoming slower and softer. The offensive odour of the stools steadily diminishes, and the temperature begins to fall about the fourth or fifth day of the treatment, and becomes normal three or four days afterwards without resulting in much loss of strength. No toxic symptoms were noticed. The treatment was continued for a week after the temperature became normal.

With regard to the method of administration, Dr. Embley thinks that the hitherto unsatisfactory results of the treatment can be accounted for by the insolubility of Naphthol β in water, and its consequent irritant action on the inflamed intestines. He recommends that the drug be first dissolved with heat in olive or sweet almond oil, and the resulting solu-

tion then emulsified with powdered gum acacia, according to the following formula :—

Rx	Naphthol β	-	-	3 j.
	Ol. olivæ	-	-	3 x. (dissolve with heat).
	Pulv. gum. acaciæ	-	-	q. s.
	Ol. cassiæ	-	-	℥ vi.
	Glycerini	-	-	℥ j.
	Aq. ad.	-	-	℥ viii.

Of this mixture, one tablespoonful to be taken every four hours.

Dr. Embley publishes the results of 11 cases only. In most of these, however, the temperature fell to 99°, and remained below that level, at an unusually early period of the disease. Thus in two cases this occurred on the eleventh day; in three on the twelfth; in three more on the fourteenth; and in the longest case, on the seventeenth day. In no case was the fall to this point delayed beyond the seventh day of the treatment.

Typhoid Fever during Pregnancy, and its Treatment by Cold Baths.—(*Journal de Médecine et de Chirurgie*, Jan. 25, 1894).—Dr. Emile Duhaut calls attention in a thesis on this subject (Lyons, 1893) to the extreme rarity of the occurrence of typhoid fever in pregnant women. Thus in 1046 cases of the disease met with in Lyons, pregnancy was present in only seven. The fever was found, in these cases, to run a normal course, although abortion occurred under ordinary treatment in more than half the cases.

Dr. Duhaut has collected fourteen cases of this combination in which the cold-bath treatment was adopted, with the result that abortion occurred three times only and no case of maternal death was recorded.

Eliminative and Antiseptic Treatment of Typhoid Fever.—Dr. W. B. Thistle (*Ontario Medical Journal*, March, 1894).—Dr. Thistle insists that treatment of enteric fever should be directed (1) towards eliminating as speedily as possible both the main culture and toxin in the intestine, and also the poison held in solution in the body fluids throughout; (2) towards diluting the toxin which is in contact with the tissues, and thereby controlling their irritant and destructive effects; and (3) towards

checking the multiplication of the bacilli, if their destruction be impossible.

These indications he endeavours to fulfil in the first place by maintaining free purgation until the subsidence of the temperature, using for this purpose calomel, mag. sulph., Rochelle salts, and other aperients. The presence of diarrhœa before the treatment has been begun he regards as in no way a contra-indication. In Dr. Thistle's cases five or six motions a day in response to purgatives have been the rule. Secondly, intestinal antisepsis has been attempted by the use of salol internally. As a result of the purgation it has been found possible to give a larger quantity of food than can usually be taken by typhoid patients.

A short analysis of 42 cases treated during two years according to this system is appended, in which it appears that no death occurred, nor was there in any case either hæmorrhage or perforation. Average attainment of normal temperature took place on the twelfth day.

On the diagnostic value of the Diazo (Ehrlich's) Reaction in Typhoid Fever.—W. R. Dawson, M.D. (*Transactions of Royal Academy of Medicine in Ireland*, vol. xi., 1893).—Dr Dawson has made careful observations on the occurrence of this reaction in 227 cases, comprising 85 cases of typhoid fever, 20 each of influenza and pneumonia, 10 of typhus, and smaller numbers of German measles, bronchitis, acute rheumatism, scarlatina, erysipelas, febricula, phthisis, whooping cough, constipation, measles, tonsillitis, varicella, alcoholism with cirrhosis, broncho-pneumonia, cancer, cholera nostras, and delirium tremens. He comes to the following conclusions:—

The reaction only occurred in 15 of the above varieties of disease, amounting to 167 cases in all. The list of these varieties includes alcoholism (febrile), bronchitis, enteric and typhus fevers, influenza, measles, meningitis, tuberculosis, acute phthisis, pneumonia, rheumatic fever, scarlatina, and whooping cough. Ehrlich's original contention that the reaction was not met with except in febrile disorders is thus so far supported.

In 42 out of 82 cases of enteric fever the reaction was present ; in the remaining 40 it failed to appear ; but Ehrlich himself admitted the possibility in rare instances of its appearance for a very limited period only in the course of the disease.

The reaction was not found in cases of erysipelas, pleurisy, and septicæmia, in all of which Ehrlich claimed its presence in the great majority of instances. It was also found absent in several cases of chronic phthisis, and in all the cases of German measles.

The final conclusion is to be drawn that there is an especial connection between the reaction and typhoid fever, and that therefore its presence has some supporting value. Its absence, however, cannot be taken as contradicting the diagnosis.

REPORTS OF SOCIETIES.

KIDDERMINSTER MEDICAL SOCIETY.

A meeting of this Society was held on Friday, September 28th, Mr. S. STRETTON being in the chair.

Mr. J. Lionel Stretton read notes on a case of intussusception in a male aged 20 years. On July 12th, 1894, whilst lifting a sixty-four gallon barrel of beer from a cart, the patient suddenly felt a severe pain in the "stomach," which made him drop the barrel. He walked home, about half a mile, and went to bed, when the pain increased, and he started vomiting. Mr. Robinson, of Stourport, who saw him, ordered opium, and advised his removal to the Kidderminster Hospital. During the night the patient's bowels acted naturally. On admission to the hospital, at 10 a.m. on July 13th, the patient walked up to the ward quite easily, and did not appear to be suffering much pain. On examination of the abdomen, the recti were

rigid, there was no distension, and the pain, which was referred to the epigastrium, was only slightly increased on pressure. During the day flatus was passed at intervals, and vomiting occurred twice; the pulse was 75, and the temperature 99·6°F. He passed a quiet night and slept several hours, and there was no increase in his symptoms. On the afternoon of the 14th he commenced to vomit again, and continued until evening, during which time about fifty ounces of semi-digested milk, which was bile-stained, were ejected; flatus was passed freely, and there was considerable hiccough; the pulse was 78, temperature 99·2°, and the respiration 25. At 9·45 p.m., as the symptoms appeared to be increasing, it was decided to explore the abdomen.

On opening the abdominal cavity, nothing abnormal was seen; a loop of bowel was withdrawn, and traced to the lower end of the ileum, where an intussusception about four inches long was discovered. There were flakes of lymph in the neighbourhood, and considerable difficulty was experienced in reducing the invaginated bowel, which was found to be œdematous and considerably congested. The whole was returned to the abdomen and the wound closed, a drainage-tube leading down to the damaged bowel being inserted. July 15th: The patient had passed a quiet night; slept several hours; no hiccough or vomiting; passed flatus. Has had one drachm of hot water every three hours. July 17th: Temperature 98·2°; pulse 50. To have milk and water. July 21st: Bowels acted after enema; stitches removed; wound healed. August 2nd: Patient up and about.

The case was of interest on account of the very slight constitutional symptoms accompanying such acute local mischief; and this was explained as the patient convalesced, when it was found that his normal pulse was about 50 and his temperature about 97°, shewing that in reality he was suffering from severe constitutional symptoms previously to the operation. It emphasised the advisability of an exploratory operation in doubtful cases.

Mr. J. L. Stretton also read notes on a case of Abscess of the

Liver, in which a gallon of pus was evacuated in a patient who a fortnight previously had undertaken a journey from the Gold Coast.

Mr. W. Hodgson Moore shewed a case of lupus, also specimens of biliary calculi removed by operation.

Mr. P. E. Davies read notes of a fatal case of Chloroform Anæsthesia. The patient, a male aged 54, who was well known to be of intemperate habits, had suffered from hernia (inguinal) for some years, for which he had worn a truss. During a drinking bout the hernia became strangulated, but no exact information could be obtained as to the time when this occurred. When seen by Mr. Stretton, the patient was in great pain, and vomiting fecal matter. A quarter of a grain of morphia was injected hypodermically, and the patient was with difficulty induced to go to the infirmary.

On admission, he was in an extremely depressed condition, and feared that he would never get over the operation. The heart was found on auscultation to be normal. Ether was first given; but, after four minutes' inhalation, was exchanged for chloroform, because of the violence of the struggling produced. Unconsciousness followed three or four minutes later, and the anæsthetic was then again changed for ether. Shortly afterwards, before the operation had been begun, respiration suddenly failed, and the patient became ashy pale. All possible restoratives were applied, and artificial respiration was performed, but without avail. Permission to perform a *post mortem* examination was refused by the friends. It may be added that, at the time the morphia was injected, the patient had refused operation.

Mr. P. E. Davies read a paper on the Diagnosis of Hysteria.

REVIEWS.

BERI-BERI.*

THE curious outbreak recently reported as having occurred in the Richmond District Lunatic Asylum at Dublin, resembling so closely as it does the essential features of Beri-beri, gives to this disease an interest and importance in the minds of British practitioners such as hitherto they have hardly been capable of feeling for a disease the distribution of which was confined to remote portions of the surface of the globe.

Beri-beri has been long known to the medical profession in India, Ceylon, and the Strait Settlements, and it has recently been identified with Kakké, one of the most prevalent and destructive diseases in Japan. It is known to occur in South America; and, according to Osler, a similar disorder has been described by J. J. Putnam among the New England fishermen who frequent the Great Banks. In 1881 and in 1889 there were epidemics among the crews of vessels fishing in this region. The disease also exists in the West Indies (Seguin). Its importance in those countries where it has obtained a footing may be judged from the fact that in 1878 the ratio of cases per thousand of force in the Japanese Navy was 327·96, and in 1882 actually reached to 404·49, although, under improved hygienic conditions, it has now fallen to less than 1. It occurs

* 1. Beri-beri. Researches concerning its Nature and Cause and the Means of its Arrest. By C. A. Pekelharing and C. Winkler. Translated by James Cantlie, M.A., M.B., F.R.C.S. Edinburgh and London: Young J. Pentland. 1893.

2. Beri-beri: its Etiology, Symptoms, Treatment, and Pathology, with an Appendix. By Arthur J. M. Bentley, M.D. Edinburgh and London: Young J. Pentland. 1893.

3. Epidemic in a Dublin Lunatic Asylum. Supposed Outbreak of Beri-beri. *British Medical Journal*, 1894, vol. ii., p. 767.

in a sub-acute and a chronic form, and symptomatically may be classified as—1, wet (œdematous); 2, dry (paralytic); and 3, mixed.

According to Pekeiharing, it commences by a latent period, during which it is possible to recognise qualitative and quantitative electrical changes in the muscles and nerves and augmentation of the diameter of the tactile areas. A certain numbness of the legs and slight œdema of the crest of the tibia, with a circumscribed anæsthetic area somewhere in the calf of the leg, are, according to the same observer, generally to be observed in the early stages of the disease.

There is no fever at this time, but it is to be noticed that serious and even rapidly fatal symptoms may supervene in a most explosive manner at any time during the progress of this latent initial phase. For example, vomiting, followed by death in a few hours, occurred in one case; another had fever, with a maximum temperature of 39.7° (103.4°), vertigo, headache, and diarrhœa; while a third had vomiting, diarrhœa and fever, with rapid diminution of motor power in the lower extremities.

Thus, a patient who has only complained of flying pains, of a feeling of weight in his limbs, and of being quickly fatigued, but who presents, on careful examination, the initial signs already described, is liable to be suddenly attacked by an acute exacerbation of symptoms.

The chief electrical sign of the initial phase of beri-beri is, according to Pekelbaring, the diminished galvanic irritability of the dorsal muscles of the foot; but, later on, the other muscles become affected. They may be swollen and painful and spasmodically contracted, or wasted and flabby, the flexors of the ankle and extensors of the wrist being frequently involved. The œdema is associated with dilatation of the heart, particularly of the right ventricle, and effusion into the pericardium and other serous sacs; but the urine remains generally free from albumen.

In the œdematous form the dropsy masks to some extent the slighter nervous alterations which are invariably present, as the

effusion may involve the subcutaneous tissue, sheaths of muscles, and serous cavities.

In the dry form the paralysis is due to neuritis, and may affect any nerves sensory or motor, paralysis of the diaphragm and the larynx and of the muscles of the face being not uncommon. The gait of beri-beri is not typical, as it varies so much with the extent and position of the nerve lesion. There are no disorders of coördination, except such as proceed from the degeneration of groups of muscles.

We have already alluded to an anæsthetic area in the calf of the leg. There seems to be another frequently met with on the anterior aspect of the wrist, which spreads over the hand, involving the thenar and hypo-thenar eminences and the proximal phalanges, but sparing the palm of the hand and the ends of the fingers for a long time. Anæsthesia also affects the inner aspect of the forearm, the chest, and the mouth. There is loss of faradic sensibility, so that it is easy to ascertain the electrical reactions.

Acute swelling of the submaxillary and parotid glands, due to swelling of the epithelium of the acini and ducts of the glands, is attributed by Pekelharing to nervous influence. The vomiting attacks, which resemble the gastric crises of tabes, are ascribed to an affection of the terminal branches of the vagus, and the heart symptoms are associated with degeneration of the cardiac nerves.

The naked eye *post mortem* appearances comprise atrophy and hypertrophy of muscles; dropsy of the cellular tissue, muscles and serous cavities; ecchymosis under the epicardium and pleura; and œdema of the lungs. The right side of the heart is always hypertrophied and sometimes dilated, while the left side may be similarly affected; the heart's muscle is often pale, and the cavities filled with clots. The liver and spleen may be congested, but the kidneys shew no special alteration. In the intestine the *anchylostomum duodenale* and *trichocephalus dispar* are frequently present, but they are not constant, and their presence is by no means confined to cases of beri-beri.

The naked eye appearances in the central nervous system are confined to hyperæmia—a not very significant change.

Under the microscope, the peripheral nerves shew well-marked inflammation, affecting chiefly the medullary sheath, in the form described as segmentary neuritis (Gombault). Degeneration is met with in the cardiac coronary plexuses, in the recurrent laryngeals, and in other branches of the vagus nerve. There are slight changes in the spinal cord of no great importance; some of the large nerve cells of the anterior cornua shew enlargement of the pericellular spaces and loss of their polar prolongations, while the posterior roots are slightly wasted. The heart's muscle, contrary to what might be expected, shews only slight fatty degeneration with only occasional evidence of interstitial myocarditis.

Pekelharing and Winkler regard the essential pathological change as a multiple neuritis, originating in the direct action of a specific micro-organism found in the blood. This organism is a micrococcus which, when introduced into the bodies of animals, produced, in a certain proportion of cases, degeneration of nerves. It was also found in the dust of barracks in which beri-beri was epidemic, and it is believed to be capable of developing outside the body.

The above account has been taken chiefly from the excellent monograph of Pekelharing and Winkler, which has been so well translated by Mr. Cantlie. It is enriched by many excellent plates.

Dr. Bentley's essay is less complete, as it deals exclusively and in only a limited fashion with the clinical history of the disease. It contains some good illustrations of patients in the various stages of the disease, but it does not carry us beyond the standpoint already reached by numerous observers some years ago. Dr. Bentley devotes some space to discussing the important question of the predisposing causes, which play so important a part here as in other infective diseases. The Japanese naval authorities have undoubtedly succeeded in getting rid of the disease by improving the diet of their sailors;

yet Dr. Bentley says : "The question of errors of diet being the cause, I think, cannot be maintained." (Page 14.) It is possible that he means that errors of diet are not the *exciting* cause. However, nobody desires at the present time to maintain this.

The Dublin epidemic, which has affected more than a hundred persons, with a mortality exceeding 10 per cent., is a non-febrile disease, commencing with oedema of the legs. The heart's action is weak ; and oedema of the lungs occurs at an early stage. If the case lasts, peripheral neuritis appears, while the oedema diminishes. In a few cases there was great pain in the extremities, and hyperæsthesia was present in the majority. Later on, "ataxic symptoms" supervened, the knee-jerks disappeared, and the muscles of the calves wasted. *There was mental dulness and sleepiness.* This condition is evidently closely allied to beri-beri, the most marked difference being in the mental change observed, the rule in beri-beri being that the mind is unimpaired throughout.

The tragic results of this deplorable outbreak have been so serious that it is not easy to over-estimate the social as well as scientific importance of the full report, which all must await with some impatience.

LECTURES ON AUTO-INTOXICATION IN DISEASE.*

THE translation of Bouchard's well-known work on "Auto-intoxication" by Dr. Oliver is an important contribution to English medical literature, and affords us an opportunity of again calling attention to the researches of this distinguished French pathologist. Professor Bouchard's object is to find out what part is played by self-poisoning in the production of disease. Notwithstanding that the toxic properties of urine and

* Lectures on Auto-intoxication in Disease ; or Self-poisoning of the Individual. By Cl. Bouchard. Translated by Thomas Oliver, M.D. The F. A. Davis Company.

other substances have been known for some time, and the various theories of uræmia are frequently discussed, due importance was not given to the subject of auto-intoxication, nor any attempt to reduce it to systematic study till this work appeared. The subject is treated of in the form of lectures, some thirty in number, and each of which merits most careful consideration and study, especially those on the urine—normal and pathological—and uræmia, for, as might be expected, these chapters are given an important position.

As illustrating Professor Bouchard's methods of investigation, we may mention the intra-venous injection of normal urine. This mode, he says, is superior to any other in giving uniformity of results and in the ease with which the experiments may be carried out. The resulting phenomena are myocis, accelerated expiration, torpor, polyuria, fall of temperature, and death if sufficient have been injected. From this he has calculated what he calls the "urotoxic co-efficient"—that is, the quantity of toxic matter which a unit of weight will produce in a unit of time. The "toxic" amount necessary to kill a kilogramme of living matter (*i.e.*, animal) is called a "urotoxy," and from this it is easy to calculate the urotoxic co-efficient.

Having thus obtained a working standard, many interesting facts are brought to light concerning the increase or decrease in the toxicity of the urine under different physiological and pathological conditions; also by treating the normal urine by special methods—as charcoal, alcohol, etc.—it has been possible to separate out the various elements of its toxicity, and so are produced corresponding variations in the effects of intra-venous injection. The toxicity of the blood, with which that of the urine corresponds, is such, according to Prof. Bouchard, that "1 kilogramme of living blood contains in its plasma—and only in its plasma—enough poison to kill more than 1,250 grms of living matter." If, therefore, there is any increase in this toxicity through faulty or inadequate elimination, symptoms of self-poisoning shew themselves in the various ways with which we are clinically familiar. Under these circumstances we may

find the excretions to have a diminished toxicity. Thus, the author shews that the urine of uræmic patients is non-toxic, or that certain toxins, convulsive or otherwise, may be absent. On this depends the variation in the symptoms of uræmia.

The chapters on Intestinal Auto-intoxication, Dilatation of the Stomach, and Jaundice are especially interesting and instructive. On the other hand, there is much space devoted to the therapeusis of typhoid fever, particularly as regards the treatment of high temperature and bathing, which seems somewhat out of place in a work of this nature.

The fact that some little time has elapsed since Professor Bouchard's book first appeared will account for there being no reference to recent investigations on the subject of supra-renal function (and for these we are again largely indebted to French observers).

As a translation, Dr. Oliver's reproduction seems to have preserved all the force and lucidity of the original, and will supply a want much felt by those in this country who are interested in this most important department of pathology.

GOUT AND ITS RELATIONS TO DISEASES OF THE LIVER AND KIDNEYS.*

THERE is no denying that this is a most readable book. It is published in a small and handy volume, the print is good, and the clear cultured style of the writing is something to be thankful for at a time when records of actual experience are only too frequently replaced by slipshod verbal padding.

A brief summary of the different theories as to the causation of gout and lithæmia occupies the first part of the volume, and is chiefly marked by the clearness of expression with which the

* Gout and its Relations to Diseases of the Liver and Kidneys. By Robson Roose, M.D. Seventh edition. London : H. K. Lewis. 1894.

views of various authorities are placed before the reader. Then follow chapters on the causes of gout, its irregular manifestations, and the hepatic and renal diseases with which it may be associated, the subject of treatment being fully dealt with in the concluding chapter.

The fact that Dr. Roose's book has already run through six editions is in itself expressive ; and this, the seventh, has been brought up to date by references to the views of the latest writers on gout and uric acid formation. Its practical value is, at the same time, increased by amplification of the chapter on treatment. This chapter is perhaps the best in the book, for although it contains nothing very new or striking, still, as a succinct account of what can be done to aid the sufferers from acute and chronic gouty conditions, it will repay careful reading. Speaking of piperazin, Dr. Roose says that increased experience has led him to form an unfavourable opinion of its value ; but he does not say why he arrived at this conclusion, an omission all the more disappointing since he adds that at first he found the action of the drug satisfactory. His remarks on food and diet generally are good ; but we do not agree with him in thinking that acid wines are as innocent of the production of the gouty diathesis as he would lead us to believe ; and the undoubted fact that they often excite a paroxysm in the goutily disposed seems to point in the opposite direction.

Practitioners who have insufficient leisure to read through the larger text-books on gout, issued from time to time, will welcome a small publication like this, which, although not in itself advancing much of original value, virtually contains the gist of its more voluminous sources.

A TEXT-BOOK OF PATHOLOGY.*

FIVE years have elapsed since we welcomed the appearance of the first volume of Professor Hamilton's splendid text-book, and notwithstanding the length of the interval diminishes the value of the work as a whole, we are delighted to possess such a complete and worthy exposition of pathological anatomy as it is taught in the best British schools. The descriptions of morbid changes are singularly clear, while they are illustrated by very beautifully reproduced drawings and enriched by copious bibliographies. Moreover, Prof. Hamilton has not allowed himself to be merely the dogmatic exponent of the views he has adopted, but states all the facts in a very temperate and judicial manner.

In addition to ordinary pathological anatomy this volume contains a very full account of the anatomy of monstrosities, such as we believe exists in no other English work, and an excellent description of the diseases due to vegetable and animal parasites, with drawings of the various pathogenic organisms. No teacher can dispense with this book, and every practitioner will find it a mine of readily accessible and valuable information.

New Books, etc., Received.

A Healthy Home. By FRANCIS VACHER, County Medical Officer for Cheshire. Published at the Office of *The Sanitary Record*.

First Aid to the Injured and Management of the Sick. By E. J. LAWLESS, M.D., D.P.H., Surgeon Captain 4th V.B. Scots Surrey Regiment. Edinburgh and London: Young J. Pentland. 1894.

A Manual of Human Physiology. By JOSEPH H. RAYMOND, A.M., M.D., Professor of Physiology and Hygiene in the Long Island College Hospital. Philadelphia: W. B. Saunders. 1894.

Essentials of the Diseases of the Ear arranged in the form of Questions and Answers By E. B. GLEASON, S.B., M.D., Clinical Professor of Otology, Medico-Chirurgical College, Philadelphia. Philadelphia: W. B. Saunders. 1894.

* A Text-book of Pathology, Systematic and Practical, By D. J. Hamilton, M.B., F.R.C.S.E., F.R.S.E. Vol. ii., Parts 1 and 2. London: Macmillan and Co. 1894.

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THE
BIRMINGHAM MEDICAL REVIEW.

DECEMBER, 1894.

ORIGINAL COMMUNICATIONS.

AN ADDRESS ON THE MODERN TREATMENT OF
PULMONARY CONSUMPTION.*

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THE treatment of phthisis has undergone various changes during the past eighty years, though these changes have been by no means so sweeping and revolutionary as those of its pathology; and during the last fifty years, whilst divergent and indeed antagonistic doctrines have successively prevailed as to the origin and nature of tubercle, the treatment of phthisis has been steadily carried on on the same lines—viz., those of fortifying and sustaining the resisting power of the patient. In early days Laennec preached the specific nature of tubercle, and Broussais maintained its inflammatory origin, in which he was supported at a later date by Addison, Niemeyer, and others. Then came the experiments of Villemin, confirmed by those of Simon, Marcet, Andrew Clark, and Lebert and Zablonus, which established the doctrine of the specific nature of tubercle, this, again, being apparently overthrown by the experiments of Burdon Sanderson, Wilson Fox, Cohnheim, and Fraenkel, who seem to have produced tuberculosis in animals by inoculation

* Inaugural Address delivered at the opening meeting of the Midland Medical Society, at Birmingham, on November 1st, 1894.

with non-tuberculous material ; but at a later date these results were proved to have been attained through the experiments being performed in a contaminated atmosphere, and similar experiments by Watson Cheyne and Dawson Williams, subsequently carried out in an aseptic atmosphere, failed to produce tuberculosis. Then came the wonderful discovery of the bacillus tuberculosis by Koch, which placed the specific character of the disease beyond all question, and reduced all forms of tubercle to the same category. But Koch's brilliant discovery, whilst it has largely assisted diagnosis, cannot be said to have contributed much to the progress of treatment. It was the signal for an enthusiastic outburst of antiseptic or bacillicide measures. The unhappy phthisical patient was muzzled with antiseptic respirators, he was surrounded by antiseptic atmospheres, and he had to submit to what Daremberg terms "orgies of creosote and guaiacol." Antiseptics were injected hypodermically, antiseptics were administered per rectum, and all efforts short of destroying the patient were directed to slaughter the tubercle bacillus. But it must be admitted that it is one thing to arrest the spread or development of this bacillus in a test-tube or on a cultivation-plate, and another to attack it in the tissues of the delicate human body, where, except at a few exposed surfaces, such as the mouth or throat, it is out of reach of local manipulation. Many of the antiseptics used had not even the recommendation of having been proved to be fatal to the bacillus tuberculosis, but were tried on purely theoretical grounds. But, after all, supposing these means had succeeded in destroying the bacilli then present in the lungs, what was to prevent other tubercle bacilli in greater numbers from entering in and falling on the soil (proved to be vulnerable), then settling and multiplying, and thus rendering the last state of that patient worse than the first? There is nowadays much discussion on the contagious nature of phthisis, and the possibility of preventing much of the disease by notification and isolation ; but while it is our duty to disinfect and destroy the sputum and other secretions of phthisical patients which have

been proved to be sources of danger, any complete system of isolation would be quite impossible in so common a malady, and, moreover, as the evidence for its necessity is very weak indeed, it would be uncalled for and cruel.

The next event in the history of the treatment of phthisis was the employment of Koch's tuberculin injections, which turned out to be a most disastrous failure, but from which many wholesome lessons may be learnt, one of which was that any treatment which promotes not conservative, but destructive changes, as shewn in the breaking down of the lung tissue and its appearance on a large scale in the sputum, cannot be otherwise than detrimental to the patient, as the area of infection, instead of being limited, is thereby considerably widened. Another lesson was that certain morbid poisons possess a distinctly elective affinity for certain organs, and appear to select old lesions in those organs. The quickness with which the lupus spots and tuberculous lesions in the lungs become the seat of active change was very remarkable, and the rapidity with which tuberculous masses of long standing broke down and cavities were formed was even more so.

Now it seems to me that all these specific modes of treatment ignore one great factor—nay, the greatest factor of all—viz., the resisting power of the organism to disease, and it is to this that the physician should lend his aid and support; for if his means are effectual, he can ward off disease, or if a patient has already been attacked, he can limit its inroads and possibly arrest it altogether. A glance at the history of the treatment of phthisis will shew that whatever success has been attained has been achieved by strengthening and fortifying treatment, whether by diet, climate or medicines, and not by so-called specific treatment. Life in the pure air, judicious exercise, a light nourishing dietary, and such aids as cod-liver oil and tonics, have effected more than all the bacillicide treatment put together. But these all act on the old principle of helping nature to help herself against her foes, and reducing the vulnerability of the patient to attack. Now what are the weapons

of resistance with which nature works in the human body in dealing with invaders like the tubercle bacillus? On this point the brilliant researches of Metchnikoff, pursued for a long series of years, have thrown considerable light. It would appear that the invasion of any organism by microbes induces an afflux of leucocytes, or "phagocytes," as Metchnikoff terms them, to the invaded region, and these have the power to absorb bacilli, which are to be observed afterwards in their structures. The more malignant the bacillus, the rarer its presence within the phagocyte. In some instances the phagocytes overwhelm the bacilli, in others the bacilli devour the phagocytes. There are two principal forms of phagocytes—viz., (1) the *macrophagus*, a large uninuclear leucocyte, generally of epithelial or endothelial origin, with a prominent nucleus, lobed or reniform, staining well with aniline dyes, and possessing much protoplasm and active amœboid movements; and (2) the *microphagus*, a smaller form, also staining well, multinuclear, or with one nucleus in the process of breaking up. Both these have the power of devouring bacilli, but not always the same kind; and in some instances, as in the streptococci of erysipelas, after the microphagi have devoured these, the microphagi themselves are again swallowed up by the macrophagi. This bactericidal action of phagocytes is often an instrument of defence, and in many cases is the cause of immunity to the individual. The intervention or the non intervention of the phagocytes seems to depend on their being attracted by some organisms and repelled by others, or they are described as having a positive chemiotaxis or attraction for certain kinds, and a negative chemiotaxis or repulsion for others. Where negative chemiotaxis develops, the bacilli are unopposed, and induce the death of their host. We must remember that Metchnikoff includes a great variety of cells in the phagocyte class—not only leucocytes of the blood, but both epithelioid and giant cells. He holds that tubercle is composed of a collection of phagocytes, mesodermic in origin, which move towards the spot where the tubercle bacilli are situate, and englobe them. These phago-

cytes either remain epithelioid in type or are converted into giant cells, which may be regarded as a further attempt on the part of the organism to protect itself against bacillar attack. The mononuclear variety of phagocytes seem to have the greatest influence in bacillar destruction. Thus Metchnikoff tells us that after inoculating marmots with avian or human tubercle, he observed a characteristic degeneration of the bacilli in the interior of the epithelioid and giant cells of these animals, owing to their being but little susceptible to tuberculosis. The bacilli, under the influence of these cells, swell up and gradually lose their power of retaining colouring reagents. Sometimes the peripheral part, but more often the central part, of the bacillus is the first to lose its colouration.

Later the bacillus becomes converted into a sausage-shaped body enclosing a very delicate canal, and the altered bacilli collect to form a conspicuous brownish mass resembling a fragment of amber. Metchnikoff remarks that these changes are never observed in artificial cultivations or anywhere outside the tuberculous cells. It is in diseases which possess a decidedly chronic development like tuberculosis and leprosy that the specific bacteria are most readily taken up by the phagocytes, and where at the seat of the disease we find great numbers of these phagocytes. The other side of the question is where the tubercle bacilli gain the ascendancy and destroy the phagocytes, either in the form of epithelioid or giant cells, as has been depicted by myself and others, where at the close of the battle no trace of cells remains, but the lines of distribution of their conquerors. Another destroyer of bacilli is the serum of certain animals, such as the rabbit, though the evidence of this bactericidal action is by no means so complete as that of phagocytosis; for though it has been demonstrated in test-tube experiments, the effects are much less marked in the experiments on living animals, and especially if the microbes be enclosed in capsules of filter paper so that they may be acted on by the serum alone without the interference of the phagocytes, for most of the serum used for inoculation contains phagocytes. Metchnikoff

thinks that the serum, though incapable of killing microbes, may dilute and destroy their toxins or poisonous secretions. A third method of destruction of the tubercle bacilli is to be seen in the process of fibrosis so largely present in chronic phthisis, though we must remember that the giant cells, which Metchnikoff claims as a form of phagocyte, often become converted into fibroid tissue, as Hamilton has well shewn. In a lung from a case of fibroid phthisis there generally exists a dense fibroid tissue where all alveolar structure has disappeared, enclosing a few caseous nodules in which some tubercle bacilli may possibly be detected; but the fibroid tissue may be searched through and through for them, and always with negative result. The striking way in which, after fibrosis has affected the walls of a cavity, the bacilli disappear from the tissue has been often noted by myself and others, and the inevitable conclusion seems to be that fibrosis is incompatible with bacillar life.

Such are the weapons used by nature to fight the battle of existence against so formidable an invader as the tubercle bacillus. In a well-organised, well-developed, and therefore well-protected individual, the bacilli are overwhelmed by the afflux of phagocytes at the point of entry, and immunity is the result. In one of less protective power they may enter and be carried along by the lymphatics to the lymphatic glands, where they undergo digestion and destruction, for Hankin's researches have shewn the secretions of these glands to have distinctly bactericidal properties. When, however, the tubercle bacilli gain an entrance and settle and destroy the tissues as in the case of the phthisical lung, the most that can be hoped for is either that the progress may be obstructed by fibrous growth—a truly pathological process—or that through exercising and extending the healthy, though often by no means adequately developed, lung in the neighbourhood, pressure may be brought to bear on the diseased portion, inducing a drying process incompatible with bacillar life. This process is encouraged by living at high altitudes.

Reflecting on the above sketch of the elements of defence against tuberculous attack it would seem that the problem of treatment resolves itself principally into means to increase the number and activity of the phagocytes and thus render more probable the destruction of the tubercle bacilli. Moreover, whatever improves the quality of these phagocytes would also improve and enrich the blood and lymph serum, of which they form a principal part. The third factor, fibrosis of the lung, supervenes in a large proportion of cases, but it is difficult to say how its growth is promoted; my impression is that the breaking down of lung tissue and the rapid evacuations of tuberculous material from that organ hasten its spread. To this conclusion I was led by careful examination of the Koch treatment cases, where tuberculous masses broke down, and were evacuated more rapidly than is the rule in chronic phthisis; and lung fibrosis, causing contraction of the thoracic walls and displacement of organs, supervened. Sometimes this process is carried too far, and fibrosis is spread through the whole lung, inducing obstruction of vessels, dyspnoea, and dropsy. Besides this problem there is another which it is desirable to keep in view. While the use of purely bactericidal agents is not urged, partly on account of their inefficiency and partly because they sometimes injure the patient, there is no reason why we should not surround the patient with those natural agencies which have been shewn to be highly unfavourable to bacterial life. These are sunlight and fresh air. Ransome and Delépine* experiments on the conditions which modify the virulence of the tubercle bacillus shewed that this virulence was reduced by exposure to daylight and fresh air and was rapidly lost.

But to return to the first problem—How can we promote the formation of lymph and of blood rich in leucocytes? All experience teaches that a large quantity of oleaginous food supplied under conditions which promote its absorption and assimilation is the surest method, and among this class cod-liver oil is easily pre-eminent, on account of its penetrative power and the ease

* Proceedings of the Royal Society, vol. lvi.

with which, with pancreatic juice, it forms a rich emulsion capable of absorption. It is probably this which has caused cod-liver oil to do so much good in the treatment of phthisis; and when we reflect on the number of poor phthisical patients, as seen in the out-patient departments of hospitals, who enjoy no advantages of climate, whose surroundings are the reverse of sanitary, whose food is scanty, and whose trade or occupation is by no means salubrious, who yet hold their own by steadily persevering for months and years with cod-liver oil, it must be admitted that it does in some subtle way supply the requisite nourishment and augment the resisting force of the system; the diminution of the usual phthisical symptoms and the rapid gain of weight and strength confirm this.

With regard to substitutes for cod-liver oil—and they are legion—I have given a fair trial to most of them, and have not yet found any at all comparable; but the combination of the oil with the preparations of hypophosphites and arsenic have proved very useful. The introduction of a large amount of milk into the dietary is to be aimed at. If cow's milk, however, fails, ass's and goat's milk should be tried, which are more easily assimilated; or if these are not available, by peptonising or preparing cow's milk it is rendered more easily digested. In some cases koumiss and kéfir will, for a time at any rate, supply the patient with what is required. It is a curious fact that although wasting is the leading feature of this affection, there are few patients who so readily gain weight as phthisical subjects when secured from over-exertion and supplied with appropriate food. At the Brompton Hospital it is no rare occurrence to see patients suffering from acute and advancing tuberculous disease, characterised by high afternoon temperatures, nevertheless gain weight owing to the large amount of suitable food taken. In phthisis gain of weight is by no means incompatible with progress of disease; all it signifies is maintenance of appetite and the avoidance of exertion. But the most important factor in the system of treatment is pure air, and on its thorough application to the system of the patient

most of our success depends. Sunshine and pure air are the best bacillicides. It must not be forgotten that it was the in-door occupations, like those of milliners, dressmakers, and tailors, formerly carried on in crowded unventilated rooms, which furnished the largest number of cases of phthisis. On the other hand, the wild tribes of the desert, living in tents like the Arabs, are exempt from the disease; but it was noted that when these were confined in French prisons they died of phthisis at a rate of 50 per cent.

Now in this country, though there is a great deal of talk about the virtues of fresh air, and boasting of going out in all weathers, in the case of invalids the doctrine of MacCormac and Henry Bennet is not carried out as thoroughly as it ought to be. A leaf might with advantage be taken out of the book of some of our Continental friends, and we might fearlessly trust phthisical patients to a little more open-air life than is at present done. Undoubtedly the treacherous climate of the British Isles, especially in winter and spring, is the great excuse. At most English health stations a wet or snowy day means confinement to the house, and generally to the fireside, for the whole twenty-four hours, the usual plea being the great tendency of phthisical patients to catch cold and contract fresh catarrh. When what goes on at Davos, St. Moritz, and Falkenstein is taken into consideration, the probability of catching cold, if ordinary precautions are taken, is very doubtful. At Davos and St. Moritz phthisical patients almost invariably sleep with open windows throughout the winter, when the thermometer not uncommonly registers — 4°F., or 36° below the freezing point, care of course being taken to heat the rooms with stoves, to provide plenty of blankets and coverlets, and to see that the current of external air is not directed on to the patient, but always first ascends to the ceiling. The universal testimony of medical men is to the effect that no harm, and much good, results from this practice. One effect is that patients accustom themselves to live at a lower temperature without noticing it. I remember a talented literary friend of mine who used to sit,

sleep, and compose at Davos in a house of which the temperature did not exceed 40° , whilst his healthy but unhappy guest was sitting shivering at his side. A female patient at Davos in winter astonished me by undressing with the window open, snow lying deep on the ground at the time. I shut the window, which, I was informed, had been open for six weeks and without harm.

But it is to the practice carried on by day at the sanatoria at Davos, Leysin, and Falkenstein that I would specially draw attention. At each of these places there are covered terraces or long sheltered corridors open on one side to the air and protected from wind, where a large number of phthisical patients, with various amount of disease, recline on couches for the greater part of the day in all weathers. These galleries are deep and lofty, sheltered from too much sun, and from rain and snow, by curtains. The patients lie on well-cushioned basket-work or bamboo couches, like the Japanese ones used at the Brompton Hospital, for from seven to ten hours daily, only leaving them for meals or exercise. In the winter there is no heating apparatus, and warmth is kept up by fur clothing and abundant covering. At Falkenstein, on the slopes of the Tannus, about 400 feet above sea level, this seems to be sufficient; and during a recent visit Dr. Hess, Dr. Dettweiler's assistant, informed me that hot bottles were rarely called for; but at Davos, where the temperature falls to 15° below freezing point in the shade, they are frequently needed. The galleries generally face south, and at Falkenstein, from their horse-shoe distribution, are complete sun-traps on bright days; and here the invalids recline in all weathers, for they are not allowed to sit up, it being found more difficult to keep them warm in the sitting than in the recumbent position. Several of them told me that they felt the cold at first, but soon got accustomed to it, and what they did dread were the white mists which prevail in autumn. Besides these terraces at Falkenstein there are a number of pavilions in the park-like gardens, some holding two or four invalids, which rotate so as always to ensure protection

from wind and rain. The patients seem quite at their ease, and may be seen reading, writing, knitting, playing cards and games all day. They can keep warm even at Davos, as I can testify when I visited Dr. Turban's sanatorium on a hard frosty day in January, 1892, and purposely shook hands with a number of invalids as they lay on their couches after sunset reading their books by lamplight. Their circulation seemed to be excellent. In these sanatoria this treatment is by no means confined to incipient cases or to those with limited lesions, but is ordered even to patients in a condition of great prostration and to well-marked pyrexial cases. Dettweiler holds that the open-air treatment is the best method of treating the pyrexia of phthisis, and his plan is as follows:—

After keeping a case of this kind in bed for a week, under diaphoretics and antipyretics, with cold water applications and dry rubbings, if the pyrexia does not abate the patient is placed under the open-air treatment, and this, according to Dettweiler, has the effect of gradually reducing the fever and improving appetite and strength. The open-air treatment has been largely in vogue in Germany since the Franco-German war, when the treatment of fever and of surgical cases in tents and in more or less open sheds was found to be so satisfactory, and most of the new German and Swiss hospitals have covered balconies or galleries adjoining the wards, where the patients can be wheeled, and where they can lie in the open air for most of the day. The same is done in some of our English hospitals if, as at St. Thomas's Hospital, the construction admits of it.

The advantages of this treatment for those suffering from phthisis are obvious, as it means the complete application of the finest antiseptic in the world—fresh air—to the lungs and system for most of the day; but the objections are twofold. The recumbent position is not the best for expectoration, and where there are cavities and the power to expectorate is feeble there is some risk of fresh lung infection from re-inhaled secretion and the formation of secondary cavities. This is met by adopting a position in which the head and shoulders are more

or less raised, as is possible with most of the bamboo couches. Again there are the want of exercise and the tendency to chilliness which such a practice involves. This is a point on which I differ from our German *confrères*, for, while they dwell on the importance of air, they do not attach sufficient importance to exercise, even in the initial lesions of phthisis. For the cases of consolidation or of excavation with pyrexia exercise is undesirable and a continuously recumbent position the best, but in the cases of limited apical lesions and limited cavities without fever it is desirable for the patient to take as much exercise as his strength will permit in order to develop and extend the healthy portions of the lung and to increase the muscular power. This, however, need not prevent the patient from spending the resting times of the day in the recumbent position in the open air. Then the difficulty of carrying out this practice in London and Birmingham and other great cities is considerable on account of the smoke, and, in winter and autumn, of the fogs; but there is no reason why it should not be tried more fully at our health resorts, like Ventnor and Bournemouth, Torquay and Hastings. The south coast sanatoria of England should, as Dr. Hermann Weber suggests, have covered terraces or balconies in which patients might lie on couches; and in the numerous villa gardens of Bournemouth and Torquay convenient rotatory shelters, capable of being turned at will to keep out wind or rain, might be erected and the verandahs be more utilised.

And now I would close with a few remarks on treatment, suggested by thirty years' experience of the disease. Cough should always be treated by promoting expectoration, one of the best forms of expectorant being the effervescing carbonate of ammonia draught night and morning, which will generally clear the bronchial passages for several hours. If there be a good deal of fruitless hacking before expectoration, causing annoyance to the patient, the addition of a few minims of dilute hydrocyanic acid and half a drachm of syrup of poppy or codeia will do no harm and considerably allay the reflex irritation. Where the cavities are large, or deep, or basic, and consequently

require great expiratory effort to clear, combinations of sal volatile and spirit of ether with camphor water (as in the form of the *mistura ætheris et ammoniæ* of the Brompton Hospital pharmacopœia) answer admirably ; while for old or feeble persons champagne will often serve the same purpose. But the most satisfactory way to reduce the cough of chronic phthisis is by counter-irritation to the chest wall—best by blistering. It will be found that relief will follow in proportion to the amount of serum drawn by vesication ; and fly blisters or *acetum cantharidis*, or the strong, but very efficient *liquor epispasticus*, answer the purpose. Night sweats, when they are a mere flux from the vessels or lymphatics and not a relief of pyrexial processes, ought to be checked, and this can generally be done by arseniate of iron, one-sixth to one-third of a grain at bed-time, or picROTOXINE, one-sixtieth to one-thirtieth of a grain, or nitrate of pilocarpine, one-twentieth of a grain, or the old-fashioned oxide of zinc in three-grain to five-grain doses, which generally succeed and do no harm. Preparations of belladonna and atropine, though they are effectual controllers of night sweats, are less satisfactory, because their continuance for a long period often induces dryness of throat and mouth, dilatation of the pupils, and disturbance of sight accommodation. The treatment of pyrexia depends very much on its cause. Where it accompanies tuberculisaton, it probably will subside of itself when the tuberculous process quiesces, and, even, if persistent, will only prevail in the afternoon. An effervescing saline, with a few drops of tincture of aconite or a few grains of quinine, is all that is then wanted. But pyrexia accompanying acute excavation, or acute excavation and tuberculisaton, is very troublesome and sometimes quite intractable. Antipyretics, of which there are any number, according to my experience, only give temporary relief, and often do harm by depressing the patient's constitutional powers and producing collapse. I have seen the temperature depressed from pyrexia to a sub-normal reading by doses of antipyrin or phenacetin, but always with bad results ; and after the use of the medicine has been omitted, the tem-

perature has risen as high as ever before. The great object in the treatment of this form of pyrexia is to keep the patient quiet in a bed or lying on a couch, and, if possible, in the open air, *à la* Dettweiler; to feed him frequently, and to supply alcohol to repair tissue waste, while administering only sufficient antipyretics to keep the temperature within moderate bounds. Quinine in small doses in effervescence before the rise or during the rise of temperature will often suffice, or Heim's well-known pill twice a day. Anyone who studies the phenomena of fever knows that temperature-rise is only a small portion of the process, and that by lowering the chart we do not get rid of the factors of heat production or of the wear and tear of the tissues, and so our best line is rather to keep up strength and weight by a frequent supply of food. The diarrhoea which accompanies tuberculous ulceration may be checked by sulphate of copper and opium if the ulcerative process be limited in extent, but if there is much ulceration, and it is the ileum and large intestine which are involved, injections are best. The enema opii of the British Pharmacopœia is excellent under these conditions; but I have seen a few of the most obstinate cases yield to large injections of linseed tea, which has a most soothing influence on the irritable ulcers.

ON SOME OF THE LESS COMMON DISEASES OF THE VULVA.

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(Continued from page 289.)

III.—CANCER OF THE VULVA.

CLINICALLY, cancer of the vulva (like cancer of the uterus) occurs under various forms; and one case of malignant disease affecting this region may offer the strongest possible contrast to another, although both may be equally specimens of cancer.

In some cases (mostly on the labia) "tumour" predominates. A growth rather slug-shaped in appearance sprouts from some portion of the labium; it has a markedly hard or indurated edge which overlaps the attachment of the tumour, while the central part or surface of the growth tends to become superficially sore or "raw."

In other cases (mostly on mucous surfaces, as in the urethral region) an unhealthy excavated ulcer is formed at once. It has indurated and slightly undermined edges, it looks exactly like a syphilitic lesion, and there is no other evidence of tumour or new growth.

Again, there may be neither definite tumour nor ulcer, but an *infiltration* under the mucous membrane, which leaves the external aspect of the parts but little altered, yet slowly transforms the soft tissues (of the vestibule and anterior vaginal wall—for example) into a thick, unyielding, solid plate of cancer-tissue, analogous to the condition known as "cuirass-cancer" of the breast and thorax.

These three types of the cancer-process are more or less familiar to all observers, but nowhere, perhaps, are they more

clearly marked than in cancer of the vulva. From the very first the disease may often be said to have started as a "substance" or a "wound" or a thickening, and sometimes throughout its whole course the characteristic type is maintained.

Of course cases are met with in which these processes are combined in various proportions, and the "type" is lost, but this applies mainly to advanced stages when ulceration has followed tumour, and the condition has existed for some months. I have noticed this in three or four cases of cancer of the upper part of the labium (or labia) in which the growth has extended to the clitoris and "mons." The opposing surfaces were rather deeply ulcerated, the tissues above the pubes were generally thickened, and the glands of the groin on one or both sides were appreciably affected.

In such cases nothing can be done of any curative value, and when the diagnosis has been given the case is usually lost sight of. In one of my cases, the patient even at this stage was extraordinarily anxious for operation, in spite of a decided opinion given against this. The pain, distress, and pruritus, which usually accompany the disease, especially when the clitoris and central parts are implicated, may make the patient clamorous for relief, and this tends to disturb the calm and settled judgment of the surgeon. Operation under these circumstances is usually mistaken, and only very temporary (if any) relief is gained by it.

In all the cases I have seen of cancer in this situation, it has appeared to me that the clitoris was secondarily affected from the upper part of the labium, and I do not remember to have met with any clear case of primary cancer of the clitoris.

The first case which I have chosen to illustrate my subject, is one of epithelioma of the right labium, a case which may be regarded as characteristic of malignant tumour in this situation, and one in which the history after operation has been recorded.

Case 1.—*Epithelioma of Labium; Removal; Recurrence in Inguinal Glands.*—S. Y., aged 39, a married woman with five children, the youngest of whom was 3 years old, came to my

out-patient room on June 22nd, 1885, complaining of a "lump in her privates," a watery discharge, and itching.

On examination, a large, hard, raw tumour was seen to be growing from the lower part of the right labium; its edges were indurated and raised; the central part was rather granular in appearance. (Fig. 1.)



Fig. 1.

The only question that could arise in diagnosis was one between malignant and syphilitic disease. There was no direct history of the latter, but the fact that the patient had had nine miscarriages during the early part of her married life was sufficiently suggestive to keep the question temporarily an open one.

For one month she was treated by antisyphilitic remedies. No improvement following this, she was admitted to the in-patient department at Spark Hill as a case for operation.

On July 29th the growth was removed. At this date, so far as my memory serves, there was no appreciable enlargement of the inguinal glands. No note, however, can be found bearing on this point. The growth was removed widely, and the wound healed with some suppuration.

On June 28th, 1886 (one year afterwards), the patient attended the hospital with the right inguinal glands enlarged and inflamed. There was no recurrence at the site of the operation. No further operation was considered advisable.

When the disease has been removed at an early stage and there has been no necessity for extensive incisions, the cicatrix is often hidden or quite difficult to find. This, and the fact that recurrence is much more common in the glands of the groin than at the original site, are observations worthy of special remembrance, as the following case will shew.

Case 2.—*Recurrence in femoral and inguinal glands of both sides one year after operation for epithelioma of labium.*—C. H., aged 36, married seventeen years, having one child 14 years old, attended at the hospital on October 12th, 1887, complaining of a swelling in the groin. On examination, the glands of the groin on both sides were found to be swollen and tender. No special cause for this could be discovered. The vulva and vagina were free from any visible disease, and no ulceration or other lesion could be found upon the legs that would account for the glandular enlargement. No other glands were affected.

On vaginal examination the uterus was found to be rather fixed by a distinct tender tumour, adherent to its posterior surface; but as no pelvic tumour causes swelling of the inguinal and femoral glands, this did not at first throw any light on the disease for which the patient was seeking treatment. On the right side one of the glands was decidedly cystic, without signs of inflammatory changes in the surrounding skin. The deep attachments of the tumours were firm and rather extensive. For a time no diagnosis was made, and the idea of removal of

the glands was seriously entertained. It then transpired that the patient had been purposely concealing the fact that about one year previously another surgeon had removed an epithelioma from the labium. It was only with difficulty that the small cicatricial line remaining could be traced. The bearing of this history, however, not only on the glandular enlargements in both groins, but also on the tumour found by vaginal examination was, of course, marked and decisive. There was evidently recurrence of malignancy in the inguinal and femoral glands of both sides and in the pelvis also. Any further operative interference was contra-indicated and avoided.

I have seen two cases of rapidly ulcerating epithelioma of the urethral region and vestibule. The only evidence of new growth was the indurated margin of the ulcer, and in one case a history of direct injury (real or assumed) made an immediate diagnosis very difficult.

Case 3.—*Ulcerating Epithelioma of Vestibule*.—F. D., aged 46, widow, having six children, the youngest of whom was ten years of age, came to my out-patient room in May, 1891, stating that she fell over a chair three months before her visit,

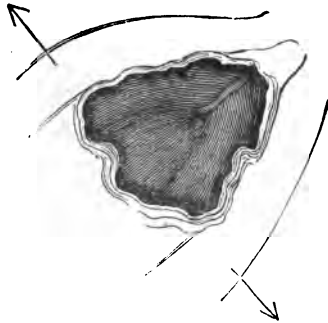


Fig. 2.

that she hurt herself between the legs, and had suffered from severe pain and some discharge ever since her accident. On examination I found a wound involving the vestibule

and anterior vaginal wall. The latter appeared to be lacerated, with ulceration extending into the tissues below the vaginal wall. The ulceration had spared the urethra, which was exposed as a raw, sub-vaginal papilla in the centre of the wound, and was held in position by a pubic attachment only.

The accompanying illustration (Fig. 2.) roughly represents the appearance of the part when examined with a Sims' speculum, the patient lying on her left side. Without the use of the speculum and wide separation of the labia, the lesion appeared rather as a deep cleft or fissure, which might fairly be regarded as consistent with the history of traumatic origin, and it was at first considered possible that the injury had resulted in an unhealthy sore, owing to some specific constitutional taint.

But the progress of the disease shewed conclusively that the lesion was an ulcerating epithelioma. All treatment was useless, and the patient died some seven or eight months after her first attendance.

In the following case the urethral orifice itself was the seat of an ulcerating epithelioma, and the diagnosis was comparatively easy.

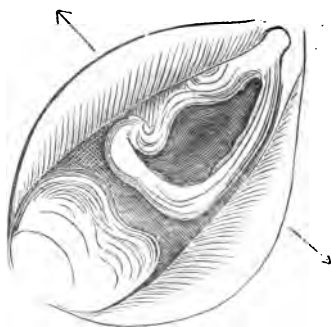


Fig 3.

Case 4.—Ulcerating Epithelioma of Urethral Meatus.—
E. L. S., aged 65, widow, whose youngest child was 26 years of age, came to my out-patient room in July, 1893, complaining of prolapse of the womb and pain on micturition.

On examination with Sims' speculum in the left lateral position (as seen in Fig. 3) the anterior and posterior vaginal walls were found to bulge outwards, affording evidence of considerable cystocele and rectocele; and in the anterior wall there was a deep excavated ulcer, in which the end and orifice of the urethra had been destroyed and lost. The margins of the ulcer were very hard to touch, and the malignant nature of the disease was explained to the patient. No operation was done; and after a short time the patient ceased attendance.

Of the "infiltrating" type I have only one case to report, and this was secondary to cancer of the uterus.

Case 5.—*Cancerous Infiltration of Anterior Vaginal Wall and Vulva; secondary to Epithelioma of Uterus.*—Mrs. M., aged 61, was occasionally attended by me for nearly a year before her death. When I first saw her she was already suffering from cancer of the uterus (epithelioma of the cervical endometrium), but the disease was confined to the interior of the uterine canal, and the diagnosis lacked absolute certainty. I therefore advised curetting of the uterine mucous membrane and microscopical examination of the tissue removed. This was done forthwith, and although the diagnosis of malignancy was confirmed by Dr. Crooke's examination, the local improvement resulting from the operation was marked. From this date but little discharge of blood or other fluid, and no further extension of disease in this direction was noticed. Almost immediately afterwards, however, the patient complained of pain in passing water—indeed, on close enquiry it appeared that there had been some dysuria before the operation, but she had neglected to mention it. On examination a little very superficial ulceration was seen near the urethral meatus. At this stage no definite thickening was found, and it was thought possible that some accidental abrasion had occurred at the time of the curetting. Unfortunately, the disease was of a much more serious nature; it steadily progressed, and its epitheliomatous character was soon evident. The anterior vaginal wall and the base of the bladder were invaded by a sub-vaginal

mass of cancerous deposit, which completely closed the pubic arch and caused exquisite tenderness and pain. Yet the ulceration did not extend; and on simple inspection of the parts no adequate idea could be obtained of the grave alterations taking place beneath the mucous membrane. It was only on thorough examination under anæsthesia that the extent of the change could be satisfactorily made out. Irritation of the bladder, catheterism, and more or less cystitis necessarily followed; and although the patient lived for several months, it was evidently this latter development of the cancerous process which destroyed her life, and not the uterine disease, which remained quiescent. Before this patient died the cancerous infiltration had extended into the labia of both sides; forming, especially on the left side, a tumour of considerable size. No ulceration, however, had taken place when last I saw her.

Do the changes I have described exhaust the ways in which cancer of the vulva may make its first appearance? Is it possible that epithelioma in this situation may start not only as a "tumour" or "ulcer" or "thickening," but also as a chronic and intractable "inflammation?" The reasons for this question will be made evident by the narration of the following case.

Case 6.—*Chronic Purulent Urethritis; Epithelioma of Uterus; Epithelioma of Vulva.*—Mrs. K., aged 46, was sent to me in February, 1889, by Dr. Harmar. She had been married for twenty-four years, and had one child aged 23. She had not been pregnant since this date.

For six months she had been complaining of frequent and painful micturition, of "soreness of the passage," and dyspareunia.

On examination, I found an irregular rim, of almost claret-coloured redness, around the urethral orifice, without any sign of either hardness or ulceration. The urethra itself was evidently inflamed, and "pus" was plainly visible within the urethra.

Regarding the case as a purulent urethritis, presumably of gonorrhœal origin, I treated the urethral inflammation by iodoform bougies and nitrate of silver, but with no permanent result.

I enquired into the history of the patient and of her husband, and after an interview with the latter and full examination both of himself and of his wife, I could not find the slightest ground for suspicion of either gonorrhœa or syphilis.

The condition continued intractable, and a month later (March, 1887) I examined the urethra and bladder under anæsthesia, freely using the thermo-cautery to all the inflamed parts. Even at this date there was no induration or anything to be found beyond the peculiarly intractable urethritis.

A month later (April) the urethral condition was somewhat relieved, but I found (for the first time) some indications of a progressive erosion of the cervix, and began to suspect that the condition of both urethra and cervix was really epitheliomatous.

A further consultation was then held upon the case, at which the (latest) consultant expressed his opinion that the whole condition was syphilitic—an evidence, so far as it goes, of the continued difficulty regarding diagnosis. Having fully gone into the question of contagion at an earlier stage with negative result, I could not agree with this opinion, and on the 26th of April I removed the diseased cervix, thoroughly cauterising the stump. For a few months following this operation the disease appeared to be in abeyance, but it soon reappeared and grew rapidly.

I had an opportunity of seeing this case several months afterwards, when the patient was dying from return of malignant disease in the pelvis. The vestibule and anterior vaginal wall was then the seat of a dark red, slightly raised papular eruption or growth. The mucous surface in this situation was unbroken, the growth was not specially hard to touch, and the urethra itself, within the meatus, was still obviously inflamed, and contained a drop or so of thin yellow pus.

Whether this urethritis be regarded as only a complication or

premonitory symptom (like the nipple-eczema, sometimes premonitory of cancer of the breast), the clinical fact remains that it never was cured, and finally merged by imperceptible stages into the general condition of malignancy.

In this case it will be noticed that the urethral condition persisted as a minor ailment before and throughout the whole course of the fatal uterine disease. In this respect the case forms a marked and worthy contrast to the preceding one, in which the uterine epithelioma persisted as a minor ailment before and throughout the whole course of the fatal vulvo-vaginal disease.

THE STRUGGLE FOR THE LIFE OF OTHERS.

AN ADDRESS DELIVERED, ON OCTOBER 17th, 1894, BEFORE THE
QUEEN'S COLLEGE MEDICAL SOCIETY, BY THE PRESIDENT,

CHRISTOPHER MARTIN, M.B., F.R.C.S.

ALL who have impartially studied the question are now agreed that man, in common with the animals and plants, has developed in obedience to the laws of evolution. We were made one with Nature: we have arisen out of the animal, and we must not arrogantly deny the kinship of our poor relations.

" 'Tis the sublime of man,
Our noontide majesty, to know ourselves
Parts and proportions of a wondrous whole."

Through immeasurable tracts of time the "hands that reach thro' Nature" have been moulding man, leading him ever onwards and upwards. Through the dim vista of the past we can trace his lineage back from type to type, from the highly organised to the rudimentary, from the complex to the simple, from Shakespeare to the Amœba. Every day we are learning more clearly to comprehend the processes of the evolution of life, and the steps that have marked the ascent of man. Of the first origin of life we know nothing. Whence and how came

the first living cell—that tiny tremulous speck of protoplasm which one day found itself floating on the waters of the lifeless world, and which was the grand ancestor of us all? This mystery remains unsolved and is apparently insoluble.

In the evolution of life two great influences have been at work—

1. The struggle of each organism for its own life.
2. Its struggle for the life of others.

The recognition of the first of these we owe to the labours of Darwin, Wallace, and Spencer, who formulated the law of "natural selection by the survival of the fittest in the struggle for existence." Till very recently, however, scientists failed to realise the importance of the second factor. They saw but the dark and selfish side of creation; and a terrible picture it made! They saw the cruelty of Nature, her recklessness of life, her disregard of suffering. The world was one vast battle-field, where the powerful trampled down the puny, the strong surviving, but the weaklings going to the wall. In this dreadful struggle no mercy was shewn, no quarter given. Out of the fierce ordeal a few victorious types emerged triumphant and stronger for the fray; but at what a cost! Truly life seemed

"As iron dug from central gloom,
And heated hot with burning fears,
And dipt in baths of hissing tears,
And battered with the shocks of doom
To shape and use."

Professor Drummond in a recent work ("The Ascent of Man") has pointed out that, from the beginning, another and holier influence has been at work—"the struggle for the life of others," the spirit of Love in Nature. I propose to-night to briefly direct your attention to some aspects of this potent factor in evolution.

Love is creation's supreme law. To it we owe nearly all that is sweet and beautiful in Nature. It is Love that has dowered the rose with its exquisite beauty, its glory of colour, its wealth of fragrance; Love that has created the luscious fruits of the earth; Love that has taught the nightingale its melting music.

By the word "struggle" I do not necessarily mean a hostile or destructive process: in many instances it might be termed "labour for the life of others."

This struggle is, in all the lower phases of life, an unconscious one. Its beginning may be seen in the principle of co-operation whereby all things work together for good. Differentiation of function—the parcelling out of the work of the organism amongst separate organs and tissues—is a phase of the struggle for others. The cells of the root, the cells of the leaf, the cells of the bark, work not for themselves, but for the whole plant. The stomach digests, the heart beats, the eye sees, not for their own selfish ends, but for the benefit of the whole body.

The two fundamental processes of life are nutrition and reproduction. The selfish struggle for existence arose out of the necessity of fighting for food, and is therefore directly related to the function of nutrition.

The unselfish struggle for the life of others arose out of the necessity for perpetuating the species: it is therefore the resultant of the function of reproduction.

Throughout the whole of living Nature the process of reproduction involves more or less self-sacrifice on the part of the parent organism. In many of the lower forms of life the parent loses her own life in continuing the life of the species. In some of the primitive Annelida the mature female dies in liberating the ova. All the energies of the flowering plant are devoted to the attainment of one great end, the perpetuation of the species. The one aim and object of its life is to produce seeds, to secure their fertilisation, and to scatter them when mature under the best possible conditions for their future germination and development. The life of the plant is a long unselfish labour of love for the next generation.

Nature has devised many ingenious methods for securing the fertilisation of the seeds of plants, but by far the most interesting is that which depends on the co-operation of insects. Thus there are certain flowers which depend for their cross-fertilisation on the ministration of bees. In order to tempt the bee to visit

it, each flower secretes in a special pouch a drop of nectar. The bee passes from flower to flower sipping in turn their sweets, and carrying the precious pollen grains from the stamen of one flower to the stigma of the next. The flower thus works for the bee—it supplies it with honey; and the bee works for the flower—it brings it the fertilising pollen. Of course each serves the other for its own selfish ends, and is unconscious of its service. Yet not utterly selfish; for all this trouble is taken, this nectar is elaborated, not for the benefit of the parent plant, but for the sake of the next generation.

Many of Nature's plans for the dissemination of the seeds of plants depend on the co-operation of animals, especially birds. To this we owe some of our most delicious fruits. The luscious flesh of the strawberry, the fig, and the grape, tempts the birds to devour the fruit. The minute seeds embedded in it are clad in hard shells, so that they pass unchanged through the alimentary canal of the bird and are sown in some distant soil far removed from the original plant. A new colony there springs up and repeats the process. Here we see the bird and the plant co-operating for each other's good: the plant provides a banquet of fruit for the bird, and the bird in return sows the seeds of the plant. I do not for one moment assert that this co-operation is a conscious or voluntary one. The plant knows nothing of the bird's wants, nor does the bird give one thought to the destiny of the seeds it swallows. None the less is the mutual service rendered; both bird and plant are blindly "struggling for others."

Let us now follow the bird to its nest and see how it strives to perpetuate its species, to rear its young, and to give them a fair start in the world. The male and female birds woo and mate. Billing and cooing, the lovers build a home together. In this nest, lined with the down of her own breast and warmed by the heat of her body, the hen lays her precious eggs. The male, proudly decked in his gay spring plumage, is busy keeping his home in repair, defending it from attack, and foraging for dainty morsels to feed the chicks. The parent birds are wholly

wrapt up in their love for their young, and do not cease their tender ministrations till the little ones have learned to fly and forage for themselves. What a marvellous foreshadowing we have here of human love and marriage and the sacred duties of family life! This is a conscious voluntary struggle for others, wholly unselfish and without thought of reward. Other things being equal, the offspring of the most devoted and self-sacrificing parents will survive in the struggle for existence, whilst the chicks of the careless selfish birds will perish.

When we come to the evolution of the human race, we can appreciate to the fullest what a tremendous power this struggle for others has been in raising mankind out of the beast. According to Drummond, the chief factor in this supreme achievement has been the evolution of the unselfish mother. The human babe is so helpless at its birth, it is so long in gaining sufficient strength to carry on unaided the struggle for existence, that its one chance of survival depends on the care taken of it by its mother. To her self-sacrificing devotion, her tender love, humanity owes an incalculable debt.

Go back in imagination to the days when savage man lived wild in the woods, as the ape does now. Suppose two mothers—one selfish, the other unselfish, each with her helpless offspring—attacked by some common foe. The one, with no thought save for her own safety, flies, and abandons her young. The other, who has learned to love her babe, stays to fight for its precious life, or flies with it to a place of security. The child of the selfish mother perishes, whilst that of the unselfish survives. The good qualities of the nobler parent are inherited by the child, and so the virtue of unselfishness and the spirit of self-sacrifice grows and is intensified from generation to generation. Nature thus put a premium on good mothers, and made the struggle for others of far greater moment in the evolution of mankind than the struggle for self.

Let us now briefly glance at the evolution of the father. Compared with the mother, he plays but a secondary part in the struggle for others. In plants, the male elements, the

stamens, have but one function—to produce pollen to fertilise the ovules. This done, they die, and the development of the fruit is left entirely to the maternal part of the flower. In many insects a similar state of affairs exists: the unfortunate male dies the moment impregnation is accomplished. In the fishes, however, we see the dawn of the paternal instinct. In many species the male prepares a retreat or nest for his mate to spawn in, and assists her in guarding the ova. In the birds, the males, as we have seen, are exemplary husbands and fathers. In the mammals, the male is essentially a fighter. He wages fierce battle for his own life, for food and drink, and for the satisfaction of his animal desires; but he does not care one jot for his offspring. In some cases, as in the carnivora, he is positively hostile to them, and the mother has to hide them from him lest he eat them.

In the mammalia it is not till we reach the human savage that there is any trace of family life such as we saw well-established amongst birds. How then did Nature evolve good fathers out of lawless savages? According to Westermarck it was by the abolition of the physiological pairing season in the case of the human being. This led to the formation of permanent instead of transient love relationships between man and woman—to the institution of primitive marriage. The savage was thus led to fight and labour not merely for himself, but for the companion of his life. Living with her meant living with her offspring. The daily association with his helpless babes awakened new sympathies, and gradually there dawned within the father's breast the spirit of love for his children. Having learned to love them, he was ready to labour for them, fight for them, die for them. The children of such a father had obviously a better chance for survival than those of the careless, selfish father.

Family life having thus been established, and the sacred ties formed binding together husband and wife, parent and child, brother and sister, the foundations of civilisation had been laid. Union meant strength, and those families whose members

were bound together with cords of love fought for one another and triumphed over those who owned no such bond.

Out of the family rose the tribe, and out of the tribe the nation, as is well shewn in the history of the Jewish race.

In the battle for pre-eminence amongst nations those races will triumph whose individuals have learned the value of co-operation, and in which the struggle for others has reached its highest development. It is now a necessity of civilisation, that in order to maintain our individual existences we must labour for one another. The baker must earn his own bread by baking bread for the community. The tailor must clothe his fellow men in order to be clad himself.

"All men find their own in all men's good,
And all men work in noble brotherhood."

We of the medical profession have our own individual struggle for existence, and an arduous one it often is! But in a very special sense we struggle for the lives of others. Our object is not to enable the fittest alone to survive, but to render the largest possible number fit to survive; not to benefit the strong at the expense of the weak, but to raise the weak to the level of the strong.

We are thus doing a work of immeasurable importance in furthering the evolution of mankind. In the struggle for existence amongst nations, the best doctored races—I use the term in its widest sense—will, *ceteris paribus*, survive. This thought alone ought to stimulate us to more strenuous effort, to give us courage in the face of difficulties, to inspire hope when our hearts sink within us. If we each do the best that within us lies, we shall be rewarded, not perhaps with titles or riches or fame, but with the consciousness that in doing our duty to our suffering fellow-creatures, we have hastened the evolution of mankind, we have raised humanity in our own day to a higher level, and have bequeathed untold blessings to generations yet unborn.

THE TREATMENT OF ENTERIC FEVER.

THE Report on Typhoid Fever recently issued in the Johns Hopkins Hospital Reports, an abstract of part of which appeared in the *Periscope* in our last number, suggests some important questions with regard to the treatment of this disease. It will be remembered that the cases of which statistics are contained in that report were 229 in number. Of these, the first 33 were treated on the expectant plan; the remaining 196 were subjected to the cold bath treatment, according to the system described at length in the *Periscope*. Out of the total number of cases, 22 ended fatally, giving a mortality of 9·6 per cent.; or, excluding the 33 cases treated expectantly, the mortality of the remaining cases amounted to 7·1 per cent. only. The former Dr. Osler claims as an average rate of mortality, "perhaps a little lower than is common in general hospitals." Six patients died from the toxæmia of the disease itself, and two from the gastro-intestinal symptoms; four died from intercurrent affections, three from hæmorrhage, and eight from perforation.

The remark that the low mortality quoted is only a little below the average rate in general hospitals—referring, as we understand it, to those only which adopt the cold bath treatment—must impress anyone who is acquainted with the death-rate in our English hospitals. It is, however, supported by another set of statistics quoted in the same *Periscope*, in which Dr. Jas. C. Wilson, of Philadelphia, reports a series of 300 cases of typhoid fever treated by cold baths in the German Hospital of that city, with a total mortality of 6·6 per cent. This, Dr. Wilson maintains, is about the average mortality of an extremely large number of cases treated in all parts of the world according to the same method. That the death-rate in

English hospitals, in which as a rule the expectant method is adopted, exceeds these figures very largely is beyond question, and indeed it appears to be generally admitted that it varies roughly between 15 and 25 per cent. ; as an example of which we may quote the statistics brought forward by Dr. Cayley in his Croonian Lectures for the year 1880, in which he collected 14,125 cases treated expectantly in the chief London Hospitals during a period of nine or ten years, with a total mortality of 17·8 per cent.

The comparison of the results of the two methods of treatment can however be carried out more closely. We quote the following statements from an address delivered, in 1884, by Dr. Cayley, before the Medical Society of London. In the Charité Hospital of Berlin, during the years 1848 to 1867, 2,228 cases of typhoid fever were treated by the expectant method, with a mortality of 18 per cent. ; the cold bath system was then introduced, with the result that, from 1868 to 1876, 2,086 cases were treated, with a mortality of 13 per cent. In the Prussian army the mortality from 1868 to 1874, under the old method, amounted to 15 per cent. ; after the introduction of the antipyretic treatment the death-rate fell during the next six years to 9·7 per cent., these two series of cases being strictly comparable in all particulars. Again, Professor Jaccoud has stated that under the expectant treatment the death-rate in 80,000 cases in France was about 19 per cent., and that under the new system it has fallen to below 11 per cent.

The question which these and other similar statistics bring before us is an important one ; for if it be admitted that the cold bath treatment of typhoid fever materially lowers its death-rate, we cannot too soon adopt it generally in England. On the other hand, in such matters statistics are not always to be altogether relied on, and, above all diseases, those of typhoid fever are probably most open to sources of error. With the object therefore of comparing in detail, as far as possible, the results obtained by the expectant method of treatment in one of our large hospitals with those reported by Dr. Osler—for of

the larger collections of cases no details are forthcoming—we have, with the permission of the Staff, collected the particulars of all the cases of typhoid fever treated in the Birmingham General Hospital from July, 1885, to June, 1894, inclusive. In all these cases the treatment has been practically expectant throughout, although in a small number intestinal antiseptics have been used, and cold water treatment adopted in a few cases of excessive pyrexia.

In these nine years 304 cases were treated, in which the diagnosis of typhoid fever was beyond question. 193 of the patients were males, 111 females; their ages are given in a table below. 51 patients died, giving a mortality of 16·8 per cent. Relapses occurred in 45 cases.

A study of the fatal cases shews that, as far as can be discovered, 22 deaths were due to the toxæmia of the disease, 2 more or less directly to hæmorrhage (although hæmorrhage occurred at some period of the disease in 30 cases altogether, and in 12 of the fatal cases), 1 to peritonitis, and 13 to perforation; whilst intercurrent affections were responsible for 13 deaths. The two following tables give the distribution of deaths as regards the age of the patient and day of admission, respectively, and the percentage mortality for each of these particulars.

TABLE I.

<i>Age.</i>	<i>No. of Cases.</i>	<i>Deaths.</i>	<i>Mortality.</i>
Under 5	6	2	33·3 per cent.
5—10	29	4	13·8 „
10—15	64	6	9·4 „
15—20	68	13	19·1 „
20—30	85	12	14·1 „
30—40	37	8	21·6 „
40—50	8	3	37·5 „
50—60	1	1	100 „
Doubtful	6	2	

TABLE II.

<i>Day of Admission.</i>	<i>No. of Cases.</i>	<i>Deaths.</i>	<i>Mortality.</i>
1st week	72	8	11.1 per cent.
2nd "	92	12	13 "
3rd "	63	11	17.5 "
4th "	29	4	13.8 "
5th "	5	3	60 "
6th "	8	4	50 "

In attempting to compare the details of these cases with those brought forward by Dr. Osler, certain differences between the two series are obvious. Thus, for example, the incidence as regards age differs materially, though we cannot recognise that this has any particular bearing on the contrast between the death-rate in the two cases. There are, however, two main points—putting the question of treatment aside, for the present—which will have an enormous influence upon the statistics of any given epidemic, and consequently of any collection of cases; these are the period of the disease at which the patient comes under treatment, and the severity and type of the epidemic itself. On comparing Dr. Osler's cases with those which we have collected from the records of the Birmingham General Hospital, it at once becomes evident that from the point of view of date of admission Dr. Osler's patients had an immense superiority; for, whereas 17 per cent. only of his cases were admitted after the end of the second week of the disease, no less than 38.6 per cent. of the Birmingham patients were admitted after that time. The latter cases were therefore to a large extent in a much more advanced stage of the disease at the time when they first came under observation, and a reference to Table II. will shew the influence of this point upon the total mortality. On the other hand we must nevertheless admit that the percentage of deaths for each period of admission was materially lower in Dr. Osler's cases than in our own. The bearing of the other factor which we have mentioned cannot be so easily demonstrated, and it is one, moreover, on which published statistics must necessarily be silent. Its effect,

however, is probably equally great; and most physicians will be able to call to mind epidemics in which the disease has assumed a peculiarly virulent type, and in which all treatment has seemed equally powerless to ward off the fatal issue. Such an epidemic will, of course, disastrously affect the death-rate of the period in which it is included; and we have reason to know that at least one such epidemic occurred in Birmingham in the period under discussion.

Speaking at a recent meeting of the British Medical Association on this subject, Dr. Saundby called attention to some figures, taken from his own hospital cases, as tending to shew the little reliance that can be placed upon statistics in judging of the effect of any particular line of treatment in typhoid fever. Briefly, the figures are as follows:—During the four years and a half from July, 1885, to December, 1889, 21 cases were treated, with a mortality of 23·8 per cent.; whereas during the four years and a half next ensuing, 55 cases were treated, with a mortality of 5·4 per cent. only. The treatment in the two series of cases was practically the same, and was mainly expectant; but had some new method been introduced early in the course of the second series, we need scarcely point out what the conclusion would have been.

For reasons such as these we are, we think, justified in viewing with some degree of doubt statistics based upon a comparatively small number of cases; and the plea for accepting such statistics with a certain amount of reserve receives some support from the fact that the large collections of cases previously quoted are very far indeed from giving such brilliant results as those reported by Drs. Osler and Wilson. Nevertheless, we must admit that even these large collections do undoubtedly point strongly to the beneficial effect of the cold-bath treatment; and, although explanations on somewhat similar lines as those given above might possibly be forthcoming to some extent, had we the details before us, it is in the highest degree unlikely that, considering the number of cases reported, they would be able to throw any great degree of doubt upon their reliability.

REPORTS OF CASES.

CASES OCCURRING IN GENERAL PRACTICE.

BY E. N. NASON, M.B.

Complete Inversion of Uterus.—On April 27th, A. T., aged 25, a tall, spare, rather anæmic woman, was delivered of her first child. The labour was in all respects natural, and the pains only slight throughout. Ten minutes after the birth of the child, one single violent uterine pain occurred, and completely expelled the placenta into the bed. On examining, the uterus was found to be completely inverted and extruded, and the placenta was seen to be still attached slightly to the very centre of the fundus. No “expression” of the placenta had been attempted, and no traction employed; the accident was entirely spontaneous. There was no hæmorrhage, but the shock was most intense. The placenta was at once removed, and an attempt made to replace the uterus. This, however, occasioned such alarming collapse, with dilated pupils and failure of pulse at the wrist, that it was only returned into the vagina, while an attempt was made to lessen the collapse by stimulants. These had but little effect; so it was thought better, at all risks, to replace the uterus. This was done, without much difficulty, bimanually, and the uterus washed out with hot antiseptic lotions. The patient made a very tedious recovery, complicated three weeks later by slight phlegmasia alba dolens in both legs.

TWO CASES OF HEAD INJURY.

1. *Fractured Base.*—Thomas W., aged 29, was examining some machinery, when an iron lever was accidentally loosed, and, flying suddenly upwards, struck him upon the left mastoid

process with great force. The head was driven upwards and jammed between the lever and an iron plate, a crushing force being exerted between the two mastoid processes. It required three men to depress the lever and free the patient's head. When this was done, blood spurted from both ears and from the nose. Though at first unconscious, he soon regained consciousness, and was able, with assistance, to walk home, a distance of 150 yards.

On being seen, about an hour later, blood was still coming freely from both ears, especially the left, and from the nose most profusely. The bleeding from the nose was so persistent and extensive (some two pints being lost during the next hour and a half), and was producing such alarming faintness and pallor, that plugging the posterior nares was resorted to, and, after some little time, succeeded in arresting the hæmorrhage. Both ears were washed out with antiseptic lotions, and antiseptic dressings applied. Next day, and for two days following, large quantities of serous fluid were discharged from the left ear. The following conditions were found in the right and left eye respectively. R.E. Fundus normal, pupil three-parts dilated and with very little reaction to light, vision fair. Partial ptosis. All ocular movements are lost except rotation on antero-posterior axis. L.E. Fundus normal, but there is a wavyness in the vitreous, which has a very peculiar appearance. Vision is very dim. Pupil is of medium size and reacts to light. There is complete paralysis of external rectus, but all other muscles act, only in a somewhat jerky way.

Four days later patient complained of pain below the left ear, and a tender swelling was noticed in the parotid region. Temperature rose to 101°F., but dropped next day. This swelling soon subsided, and patient made an uninterrupted recovery. The paralysis of the right ocular muscles gradually passed off in about a month. The left external rectus remained paralysed for three months, and then almost suddenly recovered. Sight and hearing on the left side are still much impaired, but patient is otherwise quite well.

2. *Intra-cranial Hæmorrhage*.—H. P., aged 8, fell from her pony while riding over some uneven grass at 3 p.m. on Aug. 4. She did not appear to be hurt, and afterwards rode home. Soon after reaching home she vomited, and she then mentioned her accident about which she had previously said nothing. I saw the child later on in the afternoon and found a hæmatoma a little to the left of the vertex, but no abrasion. The child was quite sensible and shewed no signs of cerebral concussion beyond the sickness. She asked for some bread and butter and milk. She was ordered to be kept in bed in a quiet room and given an aperient. Directions were given that she should be carefully watched in case of any further symptoms developing.

Nothing more was heard of her until 6.30 a.m. on Aug. 6th, when an urgent message was received. On arrival (some four miles distant) I found the following condition :—Intense restlessness with partial unconsciousness. Pulse 96, Temp. 100·8. No paralysis. Left pupil *slightly* larger than the right and reacting indifferently to light. These symptoms had come on during the night, but the child had complained of pain in the head and had also been sick on the previous day. A trained nurse was at once sent for and preparations made for trephining if symptoms persisted and consent could be obtained, as everything pointed to intra-cranial hæmorrhage, probably on the left side. Unfortunately the unconsciousness passed rapidly into coma, and death took place before anything could be done to relieve what was no doubt a rapidly increasing cerebral compression.

The points of interest in the case seem to be the apparent slightness of the injury, the length of time (36 hours) before any serious symptoms supervened, and the rapid termination afterwards.

PERISCOPE.

SURGERY.

BY GEORGE HEATON, M.B., F.R.C.S.

Intestinal Approximation ; its pathological histology of reunion and statistical analysis.—J. B. Murphy, M.D. (*Med. Record*, Vol. xlv., Nos. 21, 22, 23.)—Details are first given of experiments on animals to shew how the various intestinal coats behave under increased diastaltic pressure. It is shewn that the resistance of the intestinal wall is sustained chiefly by the submucous coat, and hence it is necessary to have the serous and submucous coats firmly united at the seat of approximation. Moderately firm adhesions form between two approximated and injured peritoneal surfaces in six hours when the surfaces are aseptic. The surfaces will not unite if they are septic. Hence, in reporting autopsies following non-union, it is of great importance to state whether septic peritonitis existed at the time of operation.

An account of the histological process which takes place after intestinal anastomosis by various methods is then given. With the Czerny-Lembert method of suture, some degree of stenosis is shewn of necessity to occur. A similar account is given of the microscopic appearances at the seat of union after anastomosis by means of the author's button. The serous, muscular, and mucous coats in the latter cases were found in exact apposition, with very little if any contraction in the lumen of the intestine.

The author then gives statistics, compiled from various sources, to shew the average mortality after the different operations of intestinal anastomosis. Gastro-enterostomy, pylorectomy with gastro-enterostomy, cholecystenterostomy, and entero-enterostomy are all discussed. With regard to the latter

operation—that is to say, resection of a portion of the intestine for gangrene, tumour, and the like, with end-to-end approximation of the cut sections of the intestine—great stress is laid on the importance of early diagnosis and immediate operation. In the different forms of intestinal obstruction the one pathological condition to be differentiated is perforative peritonitis. The various aids to such a diagnosis the author goes into in some detail, and he insists on immediate operation when once the diagnosis of the former condition is arrived at, without waiting to arrive at a definite diagnosis of the condition producing the obstruction.

After removal of gangrenous intestine, end-to-end approximation appears to give the best results, and mechanical means of doing this give far better results than the method of suture, on account of the time required for the latter operation in an already collapsed patient.

The operation of lateral approximation—either by means of Senn's plates, Abbe's rings, or segmented rubber rings—is objected to on the grounds (1) of the amount of time and labour required in the operation, (2) of the danger of necrosis of the inverted portion of the intestine, (3) the stenosis following the operation.

In 49 cases of end-to-end approximation by all methods statistics given shew a mortality of 16·3 per cent., while in 66 lateral approximation by all methods the mortality was 31·8 per cent.

Objections have been raised to the use of Murphy's button, and these the author meets. The first is that being a foreign body in the intestinal canal it may itself produce obstruction. His answer is that the accident has never occurred in the 32 cases in which it has been used, nor in the 300 experiments in which he has used it. Neither has necrosis of the portion of the intestine within the clasp of the button ever given rise to trouble. The third objection is that the small amount of surface of apposition will not prove adequate to protect the peritoneum. This he meets by the statement that he knows

of no case in which there was failure of union by the button. Stenosis has not occurred in a single case.

After giving a synopsis of 32 cases of intestinal approximation as furnished by the various operators who have used his method, the author offers the following conclusions :—

1. The more rapid the operation the less the danger from shock.
2. The more uniform and continuous the pressure at approximation the greater the assurance of adhesion.
3. The less the manipulation and exposure of the intestine the less the danger of infection, post-operative paralysis, and adhesion.
4. Mechanical means have in the last five years produced better results than the suture in both lateral and end to end approximations.
5. The mortality in end-to-end approximation is much less than in lateral apposition, and should always be given the preference.
6. The contraction with end to end is less than with lateral approximation.

Splenectomy, with the report of a successful case by W. J. Conklin, M.D., *Med. Record*, July 28, 1894.—The patient was a woman, aged 29, who had suffered much from malaria in early life. Two years before admission to hospital she began to have abdominal pains, and an enlarged and freely moveable spleen. An abdominal section had been performed three months previously, and a cystic right ovary removed. The spleen then was much enlarged, but free from adhesions. Six days before admission symptoms of intestinal obstruction set in, followed by those of peritonitis, and it was decided to remove the enlarged organ.

A seven inch incision was made along the outer border of the left rectus muscle. The spleen was found adherent to abdominal wall, omentum and intestines. The pedicle was long and twisted through three complete turns. After separating the adhesions, the pedicle was transfixed and tied with a Stafford-

shire knot, and the organ excised. A small drainage tube was left in the wound. There was but little hæmorrhage, but the shock after the operation was extremely great and almost proved fatal. Seven months after the operation the patient was well and in excellent health, save for "an overpowering drowsiness."

The author gives some interesting statistics of the operation. Splenectomy for leucocythæmic spleen seems to be an unjustifiable operation, for of 27 cases, only one was not almost immediately fatal, and even that seemed to be a doubtful case. The mortality in non-leucæmic hypertrophy, from all causes, is about 58·5 per cent. During the past decade this mortality has, however, fallen to 28·6 per cent.

Splenectomy for traumatism has a much better record than for disease; for cases of prolapse without any serious wound of the organ there have been twenty-six operations for removal of the organ with only one fatal result, a much better record than when the prolapsed organ is replaced. Removal of the spleen for cystic disease has also an excellent record.

REPORTS OF SOCIETIES.

BRITISH MEDICAL ASSOCIATION.

BIRMINGHAM AND MIDLAND COUNTIES BRANCH.

The second meeting of the session 1894-5 was held at the Birmingham Medical Institute on Thursday, November 8th, 1894, the President, Mr. H. LANGLEY BROWNE, in the chair. Present, eighty-three members and nine visitors.

The following were elected members of the Branch:— Surgeon-Major Burton; J. H. Brice, L.R.C.P.; John Steed, M.B.; Sydney Legge, M.R.C.S.

The following living cases were shewn.

Dr. Short shewed a case of tumour of the mediastinum in a man aged 34. The signs and symptoms of the case pointed

to a growth commencing near the root of the right lung, and gradually infiltrating the pulmonary tissue, spreading over the lower part and compressing the working part of the lung upwards and backwards. The main points of interest in the case were (1) that the condition commenced fourteen months ago, and that the man was still able to walk about with care; (2) that the superior vena cava was compressed by the growth; and (3) that the collateral circulation could be very plainly seen by way of the internal mammary and epigastric veins, the blood flowing downwards from the former veins by means of a large branch, dilated to the size of the little finger, to reach the iliac veins through the epigastric.

Mr. J. T. J. Morrison shewed a girl, aged 4, after operation for double genu valgum. He also exhibited a photograph of the patient before operation, shewing the severity of the deformity, the left leg being deflected outwards nearly to a right angle. The operations performed were—on the left limb osteotomy of femur and removal of a wedge of bone from the tibia, and on the right limb forcible fracture (osteoclasm). The result was very satisfactory, the limbs being now symmetrical and in a normal line.

Trephining for Chronic Suppuration of the Frontal Sinuses :—

Mr. F. Marsh shewed two cases. In the first case, a man aet. 25, there was a history of purulent discharge from both nostrils (chiefly the left) with frontal pain for ten years. The left sinus was trephined on September 21st, and the right one on October 26th. The patient was now completely cured.

In the second case, a man aet. 23, there was a history of purulent discharge from the right nostril and pain over right frontal region for five years. The right sinus was trephined on October 26th; the drainage tube had not yet been removed. In both cases the bone was exposed by a median incision, a $\frac{3}{8}$ -in. trephine was used, and a rubber drainage tube passed through the sinus and brought out through the nostril.

The discussion on Mr. Lawson Tait's paper, adjourned from the last meeting, then took place.

PATHOLOGICAL AND CLINICAL SECTION.

The first meeting of the session was held on Friday, October 26th, Dr. MALINS in the chair.

Adhesive Pleurisy following severe Burn.—Dr. Foxwell shewed a man recovering from a severe attack of bronchitis where the right chest over the whole of the lateral region, as high as the fourth cartilage anteriorly and up to the scapular spine posteriorly, gave a deficient percussion note with very feeble but otherwise normal breath-sounds. Over most of this area stretched the deep scar of a burn he received when seven years old, and Dr. Foxwell believed the change in percussion note and breath-sound was due to adhesive pleurisy set up by this injury.

Epileptiform Convulsions.—Dr. Foxwell also shewed a man of 22 who, when a child, had had his nasal bones injured by a fall, but was otherwise quite healthy. For seven years he had been subject to epileptic attacks, two or three in the year. He does not lose consciousness for ten to fifteen minutes. A cramp-like pain in the fingers of the left hand, running up to the elbow, always preceded the attacks by two or three minutes. The spasms were always of the same character, convulsive flexion movements commencing in the fingers of the left hand and passing up to flexion of the elbow, and contraction of deltoid with occasionally a drawing down of head to the left side. There was no noteworthy paresis, and he was able to continue work as a gasfitter. On November 29th, 1893, in Massachusetts, he was trephined over the middle of Rolando's fissure. The pia was thickened; there were many enlarged veins. A small trochar was passed, twice, one inch into the brain substance, but this appeared to be normal. Within six weeks he had three "fits," the twitching on the last occasion lasting three days. On January 28th, 1894, almost the whole of the remainder of the left parietal bone was removed, and again nothing but enlarged veins were found; these were liga-

tured. On recovering, distinct weakness of the left arm was noticed. This has gone on increasing; and now he is quite unable to follow his employment of gasfitter. There is also considerable wasting of all the muscles except the pectorals, with increase of the deep reflexes; also slight deficiency of localising power. The limb feels constantly numb; a patch of numbness has also appeared on the outer side of the left knee. The patient suffers from general headache, but otherwise is healthy. The discs are normal. He had no attack after the second operation till May; since then he has had four.

Nodular Swelling on each Clavicle.—Mr. George Heaton shewed a child, aged a year and a half, with a symmetrical swelling on each clavicle at the junction of the middle and inner thirds. The swellings were smooth and well defined, of cartilaginous hardness, and devoid of pain or tenderness. There was free movement between the two halves of each clavicle at the swelling. They had in all probability existed since birth. There was no history of any accident, and labour at birth was natural and easy. The diagnosis lay between an enlarged deltoid tubercle, some congenital malformation of the sternal epiphysis, and a symmetrical ununited fracture. Mr. Heaton adopted the last diagnosis, because of the free mobility in the bone itself, and assumed that the swellings were masses of callus which had become cartilaginous around the false joints.

Fleshy Mole.—Dr. Thomas Wilson shewed a fleshy mole which was expelled from the uterus of a multipara thirteen months after conception. It consisted of the placenta and membranes of about the third month of gestation; the maternal portion was infiltrated with blood clots, the chorionic villi less vascular and more fibrous than natural.

Absence of Complexus.—Mr. Thomas exhibited a boy, aged 10, in whom the left complexus muscle was wanting. He was said to have had the same appearance all his life. The left sterno-mastoid was thrown into relief by the depression behind it, so that the patient appeared to have torticollis, but all the

movements of the head could be evenly performed. The right complexus was normally developed, and the ligamentum nuchæ tense and well defined. The superior and inferior curved lines on the left side of the occipital bone could be easily traced but the usual thick bundle of muscular fibres of the complexus, and, except the thin layer of the trapezius, the bone was subcutaneous.

Vermiform Appendix with Concretion. — Mr. Christopher Martin shewed a specimen of diseased vermiform appendix, with its contained concretion, removed by operation from a youth aged 16 years. On June 20th he was seized with vomiting, which lasted two days. On the third day he was suddenly attacked with violent paroxysmal pain in the right iliac fossa. Dr. Bateman, of Middlesbro', was called in, and ordered hot fomentations and purgative enemata. On examination, he found a tumour in the right iliac fossa, hard and very tender to the touch. There was a moderate degree of fever and some peritonitis. The acute symptom subsided under treatment, but there remained in the right iliac fossa a very tender, fixed, sausage-like swelling, which rendered the patient a chronic invalid. Dr. Bateman brought the boy to Birmingham early in August to see Mr. Martin, who advised the removal of the vermiform appendix. On August 7th, 1894, Mr. Martin opened the abdomen by an oblique incision over the appendix. The omentum was found plastered over the cæcum, and had to be detached. The appendix was found behind and below the cæcum, much thickened and densely adherent to omentum, cæcum, and the iliac fascia. Whilst breaking down the adhesions, the finger opened a collection of pus apparently situated within the cavity of the appendix. The tissue of the latter was very brittle, so that it was torn away from the cæcum close to its root. Blocking the mouth of the appendix was a concretion closely resembling a date stone. When this was removed, there appeared a round aperture in the wall of the cæcum nearly large enough to admit the little finger. This was carefully closed with a series of Lembert sutures of fine silk. The field of

operation was irrigated, and the wound in the abdominal wall closed with interrupted silkworm gut sutures. The boy made a splendid recovery from the operation, his temperature never rising above normal, there being not a sign of peritonitis, and the wound healing throughout by first intention. He got up on the fourteenth day, and returned home—a distance of 175 miles—on the twenty-first day. He has since remained perfectly well.

Dr. Malins shewed a stone, weighing 400 grains, that he had removed by vaginal cystotomy from a patient aged 28.

Dr. Kauffmann shewed some specimens of pulmonary suppuration.

Mr. Morrison shewed a child with extensive congenital pigmentation.

Mr. Lucas shewed a stercolith from a case of appendicitis, and an appendix from a case of relapsing appendicitis.

Mr. Haslam shewed a specimen of perforated vermiform appendix with a faecal concretion.

MIDLAND MEDICAL SOCIETY.

A meeting of the Midland Medical Society was held at the Medical Institute on Wednesday evening, October 24th, the President, Mr. T. F. CHAVASSE, in the chair.

Mr. Barling shewed a girl, aged 9, as illustrating a mistake in diagnosis between renal stone with peri-nephritic abscess and vertebral osteitis. Five years before the child came under his observation, she had suffered from an abscess in the right lumbar region, which burst spontaneously and left a sinus which had never healed. The child had suffered occasional attacks of pain, sometimes associated with sickness, and the urine had been noticed to be offensive. The diagnosis given to the mother at a hospital was "disease of the spine," and the part was treated by Sayers' cases, with a window for the exit of pus. Mr. Barling, on examining the child, found a sinus in the

mid-lumbar region, at the bottom of which a probe detected a hard gritty body which could hardly be a sequestrum of bone, as it was not in the direction of any of the bones adjacent to the part. The urine was found to contain pus, and there was no evidence of vertebral mischief. Incision extracted a small renal calculus. The sinus is now practically dry, and the urine is free from pus.

Mr. Barling also shewed a uric acid Renal Stone removed from a woman aged 28, who, for twelve years, had suffered from pain in the right loin, sickness, and occasional Hæmaturia. Her trouble was slight until a fall on the ice eight years ago, since when the symptoms have been more pronounced. The fall was believed to have caused displacement of the kidney; to this displacement her symptoms were attributed. The woman was referred to Mr. Barling for Nephrorrhaphy; but the history dating from a time before the injury, the presence for some days consecutively of microscopic amounts of blood and pus, and the presence of an acutely tender spot in the loin on percussion, led him to diagnose stone, and this was verified at the operation.

Renal Calculus.—Mr. Barling also shewed a renal calculus removed from a young man the subject of a pyo-nephrosis of some weeks' duration. Although from the size of the stone it had evidently existed for a long time it was entirely latent until three months ago.

He also shewed a renal calculus removed from a middle-aged woman with severe pyo-nephrosis, in whom symptoms of renal stone had existed for twenty years. Commenting on these cases he recommended in pyo-nephrosis that nephrotomy should first be performed rather than nephrectomy. In some instances, after removal of the stone the suppurative process subsided and a certain amount of renal tissue was preserved. If suppuration still went on secondary nephrectomy could be done. In the last case of pyo-nephrosis mentioned a permanent fistula would probably result, and owing to the condition of the urinary excretion nephrectomy was out of the question. This case

emphasised the necessity of early diagnosis and removal of renal stone that destructive changes in the kidney might be prevented.

Gall-stones.—Mr. Haslam shewed a number of gall-stones that he had successfully removed from the gall-bladder and cystic duct of a woman aged 47. For the last two years she had had attacks of pain in the region of the liver, accompanied by slight and transient jaundice; but on two occasions within three months of her admission the pain had been very severe, and there had been vomiting, shivering, and the jaundice had lasted some days. A number of small stones were lying in the gall-bladder, and the duct was completely blocked by a large one. This was with difficulty removed. The patient made a rapid recovery and has lost all her pain.

Dr. Short shewed specimens from a mediastinal growth in a man æt. 59. The patient was under notice for about six weeks. The early signs and symptoms were those of pleurisy on the left side, and blood-stained serum was drawn off. The pain, dyspnoea, and emaciation continued, and the presence of a thoracic growth was diagnosed. Three weeks before death he developed paraplegia, from pressure on the cord at the level of the tenth vertebra. The mass, which was shewn to be a mixed-celled sarcoma, had completely surrounded the aorta, œsophagus, and trachea, but had not constricted them sufficiently to produce symptoms during life. The left lung was extensively infiltrated.

Papillomatous Cysts.—Dr. Thomas Wilson shewed (1) a papillomatous broad ligament cyst, the size of a goose egg, removed from a single woman aged 25, and (2) two papillomatous cysts of the ovaries, removed from a married woman, aged 37, by Dr. Malins. On the left cyst the ovary can be recognised; it contains a small cyst filled with blood, and on its surface is a warty mass, one eighth of an inch thick, the size of a shilling. This mass is situated on a membranous base, as if it had been left after the bursting of a cyst. Under the microscope the warts are seen to be composed of highly cellular connective tissue, containing numerous large vessels, and covered by two layers of tall epithelial cells with oval nuclei.

Both cysts had a good pedicle, and the mesosalpinx was not opened up on either side.

Mr. Jordan Lloyd read a paper "On the Localisation of, and the Operations for, Gall-stones." The object of the paper was not so much to call attention to the general phenomena of cholethiasis, but rather to take another step forwards and say where exactly does the calculus lie, whether in the gall bladder, the cystic, hepatic, or common bile ducts, and which is the operation best adapted to these varying conditions. Gall-stones are met with under five different conditions: firstly, lying in a healthy gall bladder; secondly, in the cystic duct with the gall bladder distended; thirdly, in the common duct with the gall bladder distended; fourthly, in the contracted, puckered, chronically inflamed gall bladder or cystic duct; and fifthly, in the dilated and thickened common bile duct with the gall bladder contracted and puckered by chronic inflammation. Cholecystostomy is the best operation for the first, second, and third varieties, supplemented by cholelithotripsy or choledochotomy if necessary. For the fourth and fifth varieties cholecystotomy and choledochotomy with free drainage are indicated. Better access in these latter may be obtained by transverse incision beneath the level of the liver, and drainage through a posterior puncture in the loin has many advantages. Specimens of calculi removed by operation were exhibited.

REVIEWS.

HYDATID DISEASE.*

THIS volume was written as a sequel to a former publication on "Hydatid Disease, with Special Reference to its Prevalence in Australia." Its author was a distinguished Australian prac-

* Hydatid Disease, vol. ii. By the late John Davies Thomas, M.D. Lond., F.R.C.S. Eng., formerly Physician to the Adelaide Hospital. Edited and arranged by Alfred Austin London, M.D. Lond., Physician to the Adelaide Hospital. Sydney: L. Bruck. London: Baillière, Tindall, and Cox. 1894.

fititioner; formerly a brilliant student at University College Hospital, and subsequently Honorary Physician to the Adelaide Hospital, and Joint Lecturer on Medicine in the University of Adelaide. Dr. Thomas devoted himself for many years with especial interest to the study of hydatid disease, and to the collection and arrangement of all that has been written on that subject; and that the present volume, though small in size, is the outcome of an enormous amount of labour must be evident to all who read it. It is only a matter of regret that its author did not live to complete the few details which remain unsupplied.

The remarkable tendency of hydatids to take up their abode in the liver—in the right lobe five times as frequently as in the left—is evidenced by Dr. Thomas's statistics, which shew that this organ is affected in 57 per cent. of all cases of hydatid disease. The rest of the abdominal organs together supply scarcely more than 8 or 9 per cent. of the total number of cases, even the kidney—which is affected more than twice as often as the spleen—being involved in only 4·7 per cent. Hydatid disease of the omentum, mesentery, and peritoneum has occurred in a fair number of cases—1·37 per cent., and presents in this situation a very striking tendency towards the production of multiple cysts; whilst a few instances are mentioned in which the testicle and the male and female pelvis have been the seat of the disease. The subject of hydatid disease of the abdominal organs has been so often discussed that there is little in this section of the book that calls for special mention, though some interesting cases are quoted; but we note that Dr. Thomas throws much discredit upon the diagnostic value of the hydatid thrill, as being often absent in true hydatid cysts, and sometimes present in other diseases; and also that he speaks of the occurrence of jaundice in cases of hydatid of the liver as quite an exceptional event—a statement which, from our own experience, we should be inclined to modify.

The section which deals with hydatid disease of the thoracic

viscera is interesting and well worked out. The lungs are affected in about 11·5 per cent. of the total number of cases. The right lobe is involved much more frequently than the left, and the bases more than the apices, the distribution of the disease thus very closely following that of acute lobar pneumonia. Spontaneous degeneration occurs more rarely here than in the liver, and only when the cyst is of small size; rupture, on the other hand, is a common mode of termination, and may occur either into the bronchial tubes, pleura, or pericardium, or through the thoracic or even abdominal parietes. Should the cyst rupture into the first of these structures, the patient is of course in imminent danger of immediate suffocation; when, however, the discharge takes place into the pleura, the immediate urgency of the symptoms will depend largely upon the septic or aseptic condition of the cyst contents, the occurrence or not of *plus* tension in the affected pleura, and the healthy or diseased condition of the other lung. If the cyst be a small one, it is by no means uncommon for the patient to be entirely unaware of his ailment until the moment of rupture; if it be large, on the other hand, symptoms will usually be present, of which the most important are cough, hæmoptysis, dyspnoea, and pain. Hæmorrhage, according to Dr. Thomas, is almost as important a symptom as in phthisis, and occurs in about the same proportion of cases. It may set in in either of three stages of the disease. Hæmorrhages preceding rupture are usually scanty, and are of importance only as giving rise to suspicions of phthisis. Those associated with rupture of the cyst are usually much more copious, though they do not necessarily occur; whilst hæmorrhages coming on a longer or shorter time after rupture are closely comparable to those of the third stage of phthisis, are similarly due to the giving way of the blood vessels in the wall of the cavity, and are a serious source of danger to the patient.

Attention is drawn to a few variations in the physical signs, which are of course usually those of any other tumour in the chest. When rupture of a cyst near the surface of the lung has occurred, the change from the physical signs of tumour to those

of a cavity will be almost characteristic of the disease. Nevertheless, such a change by no means necessarily occurs, for cases in which the percussion note still remains dull are not infrequent. In such cases, a peculiar cog-wheel rythmical sound accompanying the breath sounds has sometimes been noted, and the explanation of both phenomena probably lies in the plugging of the entrance to the cyst by a valve-like piece of hydatid membrane, which interferes greatly with free communication with the outside air. Changes in the physical signs accompanying alterations in the posture of the patient are much more frequently and markedly present in hydatids than in other tumours of the lung. The diagnosis of the unruptured cyst from early phthisis, pleural effusion, and other tumours, and after rupture from phthisical cavities and gangrene of the lung, is likely to give some little trouble; but from phthisis, at any rate, the good constitutional condition of the patient will usually go far to distinguish the case.

Hydatid disease of the heart is a rare condition, and occurs in only 1·845 per cent. of the cases of that disease. Usually, it need scarcely be said, a fatal result is not long delayed; but a few cases, nevertheless, are on record in which spontaneous cure has taken place. Ten cases are quoted at the close of this section, in which hydatid cysts have been found in some part of the course of the pulmonary artery.

Hydatid disease of the brain has occurred in four per cent. of the cases. In the great majority of these the cerebral hemispheres have been the seat of the tumour; but nine cases are quoted in which the base of the brain, and four in which the cerebellum, were affected respectively. The physical signs and symptoms, when present, are those of tumour in general; but Graham has called attention to the frequency with which hydatid cysts of large size are present without giving rise to symptoms. Details of a large number of cases are given in an appendix.

After a short section devoted to the consideration of hydatid disease of bones, muscles, and superficial structures, the book closes with a critical review of the various operative procedures proposed and adopted for the cure of the disease.

THE MORISON LECTURES, 1894.
THE INSANITY OF OVEREXERTION OF THE BRAIN.*

DR. BATTY TUKE has published in book form his Morison Lectures, delivered before the College of Physicians, Edinburgh. He maintains that the actual changes taking place in the cells of the cortex during mental aberration, are not sufficiently taken into account by writers on insanity; and he describes with the aid of a capital diagram, the anatomy of the cortex of the brain, in order to render more easy the process of "visualising" the morbid changes that occur. It is just as important, the author says, to have in mind a mental image of the minute anatomy of the brain, as it is to "visualise" the structure of any other organ of the body when following in treatment the changes that are thought to be taking place. Dr. Tuke does not deal with the subject beyond the early stage, and the only changes that he describes are those associated with hyperæmia. The products of metabolic activity in the cortical cells pass into the lymph channels surrounding the small arterioles, and directly cause the vessels to dilate. In this way the activity of each cell regulates its blood supply: the greater the activity, the greater the hyperæmia. What follows prolonged hyperæmia the author does not very definitely state. It is clear that some special change must take place in the cell when the hyperæmia exceeds the limit corresponding to its power of exertion. In other words, over-exertion causes over-hyperæmia, which causes insanity. Strongly as Dr. Tuke insists upon a knowledge of the anatomical changes as necessary for the understanding of the mental condition, what he describes relates only to a hyperæmia which may be due simply to exertion. It cannot therefore be said that these lectures throw much light upon the very point that the author considers is so obscure in the writings of others.

The subject of treatment is very clearly dealt with; to the

* The Morison Lectures, 1894. The Insanity of Overexertion of the Brain. By J. Batty Tuke, M.D. Edinburgh: Oliver and Boyd. 1894.

ordinary medical practitioner this is the most useful part of the book. We are specially glad to see that Dr. Tuke discountenances the wholesale exhibition of narcotising drugs in order to produce sleep in those who are overworked. The various devices he recommends are safer and more effectual. The remarks on diet, and on "home *v.* hospital" treatment are also extremely good and full of sound common sense. Our experience in these particulars leads us to agree entirely with what the author has written.

A HANDBOOK OF DISEASES OF THE NOSE AND PHARYNX.*

THIS book is intended for the busy practitioner and senior student. It is larger than the first edition as it includes the pharynx. The volume is well printed on good thick paper and the illustrations are clear and distinct.

Part i. consists of general considerations, which include the Anatomy, Physiology, General Diagnosis, and methods of Treatment; Part ii., of diseases of the Nose, Naso-pharynx, and accessory sinuses; Part iii., of Diseases of the Pharynx. It is well arranged throughout; the information contained is culled from the best sources and given in good plain medical English. The author does not indulge in theoretical discussion, and what is more to the point, there are no descriptions of illustrative cases.

The book is one to be relied upon as being the work of an earnest and thorough teacher of his craft. Take one typical subject, that of Hay-fever, page 161. Though difficult to write anything new concerning it since Blackley gave the results of his researches and Mackenzie produced his celebrated Thesis, yet we cannot but admire the skill with which this chapter was written. No author has yet got at the peculiar idiosyncrasy

* A Handbook of Diseases of the Nose and Pharynx. By James B. Ball, M.D. Lond., M.R.C.P., Physician to the Department for Diseases of the Throat and Nose at, and Physician to the West London Hospital. Second edition, with forty-nine Illustrations. London: Ballière, Tindall, and Cox. 1894.

which Mackenzie says is the predisposing cause of the complaint. We remember a letter which appeared in the *Lancet* of October 11th, 1873, in which the writer suggests that the absence of ciliated epithelium from the respiratory tract will some day, he thinks, be found to be the reason why some people suffer so much more from odours, etc., than others; that hay-fever, in fact, is due to a congenital (or other cause of) deficiency of the protective hairs, or cilia, or both.

A chapter on Formulæ and an index complete a most interesting book.

THE SOIL IN RELATION TO HEALTH.*

Too little attention is paid to the study of sanitary science by medical students and practitioners. Perhaps this is no matter for surprise in the case of the former, who already have more than enough to learn in the course of a short time; but the latter, at all events, can by no means afford to ignore the subject. The book we are reviewing contains, in small space, an admirable account of most of those points which are of importance from the medical point of view, as bearing upon the relation between the soil and the health of those who dwell upon it; and we can strongly recommend it to those who have not the time to give to the perusal of larger works on the same subject.

The book opens with a short description of the principal varieties of rock and soil and their distribution in Great Britain. After speaking of the chief micro-organisms which are believed to inhabit the superficial layers of the soil, the authors deal, in what appears to us to be two very well and clearly written chapters, with the distribution of water in the soil and its derived constituents, and with the relation which exists between moisture of soil and disease. We are not sure, however, that the list of

* The Soil in Relation to Health. By H. A. Miers, M.A., F.G.S., F.C.S., Assistant in the British Museum; and R. Crosskey, M.A., D.P.H., Fellow of the British Institute of Public Health. London: Macmillan and Co. 1893.

diseases coming under consideration in this connection might not be somewhat enlarged ; at all events, we should like to add the item asthma as being a disorder which often has a very clear relation with the moisture of the soil on which its victims live.

Two short chapters on the soil in relation to air, and the geological distribution of disease, close the book.

ANNUAL OF THE UNIVERSAL MEDICAL SCIENCES.*

THE issue for 1894 of this work has recently been received by us. It is one of which no review, in the ordinary sense of the term, is possible, for it contains or notices almost all that is worth perpetuating in a year's medical work throughout the world. The manner in which this enormous task has been performed by the various associated editors is beyond all praise ; Dr. Sajous, however, himself singles out as especially excellent the articles of Professor Lépine, of Lyons, on the diseases of the urinary organs ; of Professor Wilson and Dr. Eshner, of Philadelphia, on the different varieties of fever ; of Professor Gray and Drs. Pritchard and Shultz, of New York, on affections of the brain ; of Professor Montgomery, of Philadelphia, on the diseases of the uterus and adnexa ; of Dr. Oliver, of Philadelphia, on diseases of the eye ; of Drs. Dujardin-Beaumetz and Dubief, of Paris, on general therapeutics ; and of Professor White and Dr. Furness, of Philadelphia, on syphilis. The work is one to study at leisure, as well as a most valuable book of reference.

Dr. M. Bra, of Paris, asks us to announce the speedy appearance of his work on "*La Méthode Brown-Séguard—Traité de la Thérapeutique des Tissus*"—which will be published during the early part of this month.

* Annual of the Universal Medical Sciences. Edited by Charles E. Sajous, M.D., and Seventy Associate Editors. 1894. Vols. I.—V. Philadelphia : The F. A. Davis Company. London : F. J. Rebman.

Correspondence.

To the Editors of the BIRMINGHAM MEDICAL REVIEW.

Sirs,—In a paper on "Syphilitic Elephantiasis of the Vulva," which appears in the October number of the *Birmingham Medical Review*, Mr. J. W. Taylor makes the following statement (p. 197):—"Hill and Cooper, writing of 'Pseudo-*Elephantiasis*' in their work on Syphilis (p. 300), conclude their observations by the following paragraph:—'It is an obstinate affection, only to be got rid of by persevering anti-syphilitic treatment.'"

In regard to this I should like to point out that Mr. Taylor has got hold of the wrong end of the paragraph to which he refers, and that the sentence he quotes has reference only to an essay by a certain French author there named.

I may add that the uselessness of anti-syphilitic treatment in cases such as those so well described by Mr. Taylor was well known to the late Mr. Berkeley Hill; and this I think is pretty plainly implied in the very same paragraph quoted by Mr. Taylor, for the opinion is there expressed that the condition in question "is not an essentially syphilitic affection."

I am, sirs, yours faithfully,

ARTHUR COOPER.

20, Old Burlington Street, W.

November 16th, 1894.

[Mr. Taylor informs us that he by mistake accepted the statement in question as applying to the whole paragraph, instead of to its latter part only.—Ed.]

PUBLISHERS' DEPARTMENT.

New Inventions, Drugs, etc.

MESSRS. BURROUGHS, WELLCOME, & Co. inform us that they have obtained a supply of *Diphtheria Antitoxin*, which they will be prepared to supply by the beginning of the present month.

THE APOLLINARIS COMPANY LIM. ask us to call attention to their change of address, which will in future be 4, Stratford Place, Oxford Street, London, W.

New Books, etc., Received.

- A Treatise on the Diseases of the Ear and Naso-Pharynx, By T. MARK HOVELL, F.R.C.S. Edin., M.R.C.S. Eng., Aural Surgeon to the London Hospital. London: J. and A. Churchill. 1894.
- The Influence of Diseases of the Nose and Naso-Pharynx on other Parts of the Body. By W. SCHEPPERGRELL, A.M., M.D., Assistant Surgeon to the Eye, Ear, Nose and Throat Hospital, New Orleans, La.
- The Theory and Practice of Medicine. By FREDERICK T. ROBERTS, M.D., B.Sc., F.R.C.P., Professor of Materia Medica and Therapeutics, and of Clinical Medicine at University College, and Physician to University College Hospital. Ninth edition. London: H. K. Lewis. 1894.
- Physiology for Beginners. By M. FOSTER, M.A., M.D., F.R.S., Professor of Physiology in the University of Cambridge; and LEWIS E. SHORE, M.A., M.D., Senior Demonstrator of Physiology in the University of Cambridge. London: Macmillan and Co. 1894.
- On Gangrene of the Limbs following Typhoid Fever. By F. DAWTREY DREWITT, M.A., M.D., F.R.C.P., Physician to the West London Hospital. London: H. K. Lewis. 1894.
- Annual of the Universal Medical Sciences. Edited by CHARLES E. SAJOUS, M.D. Vols. i. to v., 1894. Philadelphia: The F. A. Davis Company. London: F. J. Rebman.
- Asthma and Chronic Bronchitis. By JOHN C. THOROWGOOD, M.D., F.R.C.P., Senior Physician to the City of London Hospital for Diseases of the Chest, Victoria Park. London: Baillière, Tindall and Cox. 1894.
- A Manual of Modern Surgery. By JOHN CHALMERS DA COSTA, M.D., Demonstrator of Surgery, Jefferson Medical College, Philadelphia. Philadelphia: W. B. Saunders. 1894.
- Fundamental Conceptions as to the Characteristics and Embodiments of Life. By JOSEPH COATS, M.D. Glasgow: James Maclehose and Sons. 1894.

- The Urine in Health and Disease, and Urinary Analysis. By D. CAMPBELL BLACK, M.D., L.R.C.S. Edin., F.F.P. & S. Glas., Professor of Physiology in Anderson's College Medical School.
- Dr. William Smellie and His Contemporaries. By JOHN GLAISTER, M.D., Professor of Forensic Medicine and Public Health, Saint Mungo College, Glasgow. Glasgow: James Maclehose and Sons. 1894.
- The Vaccination Question. By ARTHUR WOLLASTON HUTTON, M.A., Librarian of the National Liberal Club. London: Methuen and Co. 1894.
- The Disorders of Speech. By JOHN WYLLIE, M.D., F.R.C.P. Ed., Physician to the Royal Infirmary, Edinburgh. Edinburgh: Oliver and Boyd. 1894.
- A Monograph on Diseases of the Breast. By W. ROGER WILLIAMS, F.R.C.S., late Surgeon, Western General Dispensary. London: John Bale and Sons. 1894.
- Rules of the Birmingham and District Chamber of Arbitration.
- Enlargement of the Prostate. By C. W. MANSELL MOULLIN, M.A., M.D. Oxon., F.R.C.S., Surgeon to and Lecturer on Physiology at the London Hospital: London: H. K. Lewis. 1894.
- Diseases of the Upper Respiratory Tract. By P. WATSON WILLIAMS, M.D. Lond., Physician to Out-patients, and in charge of the Throat Department at the Bristol Royal Infirmary. Bristol: John Wright and Co. 1894.
- Text-Book of Hygiene. By George H. Rohé, M.D., Professor of Therapeutics, Hygiene, and Mental Diseases in the College of Physicians and Surgeons, Baltimore. Philadelphia: The F. A. Davis Company. London: F. J. Rebman. 1894.
- Transactions of the Clinical Society of London. Vol. xxvii. London: Longmans, Green and Co. 1894.

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XXXVI., No. 191.

JULY, 1894.

Price Sixpence.

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AND

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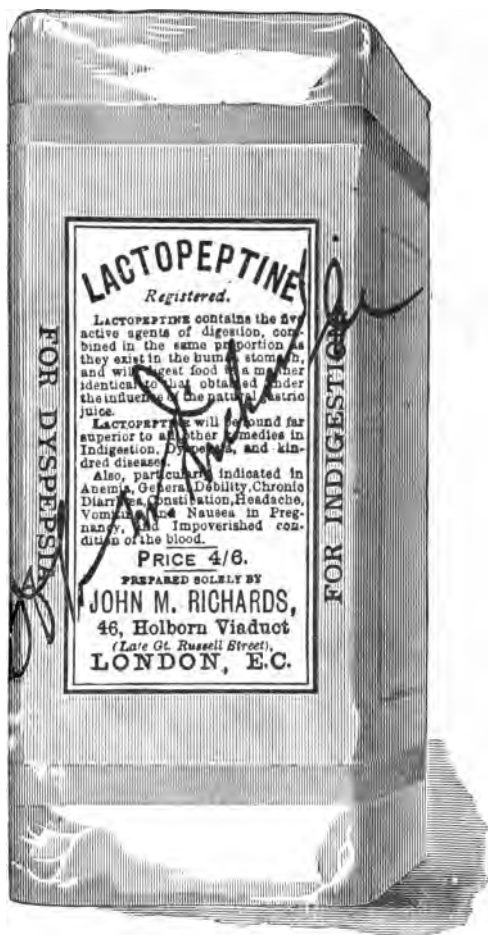
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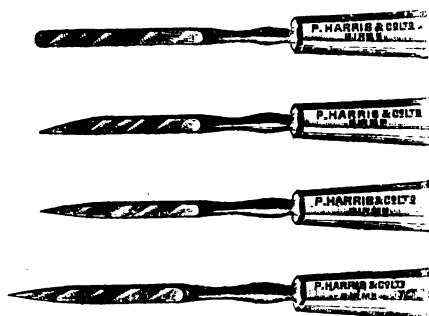
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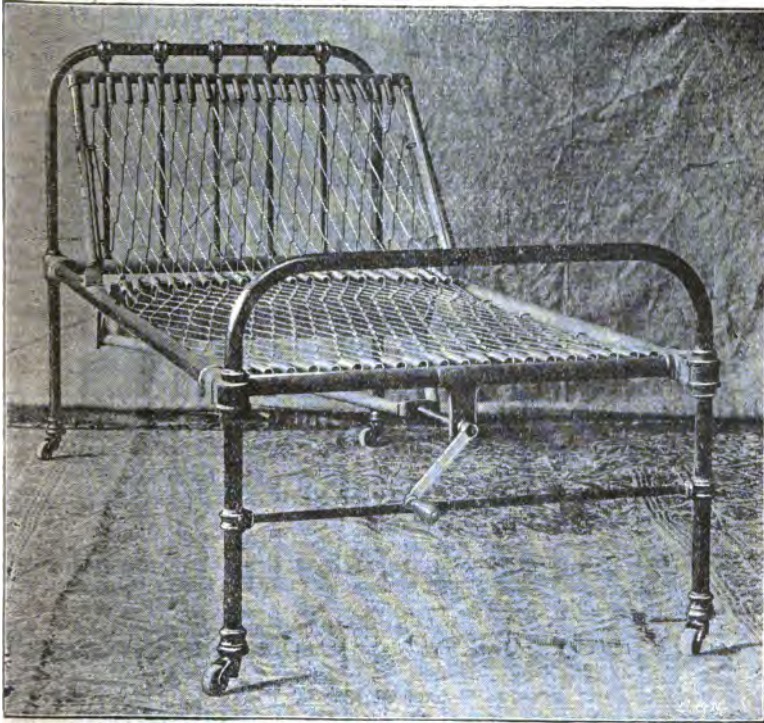
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